EXTRA REVIEW COVERAGE—Begins p. 14

NEW! Video Column — see p. 44

AMIGA WORLD

July 1991
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What's Hot? What's Not?

AW's Special Review Issue!

Head to Head:

- 14 Hard Drive Controllers
- 9 Amiga BASICs
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- Video Toaster
- AD Pro
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With every $1595 Video Toaster you get the 6 most powerful graphics products ever created for the Amiga...

1. LightWave 3D Modeling, Rendering and Animation

Really three programs in one, LightWave will make you forget everything you know about 3D on the Amiga.

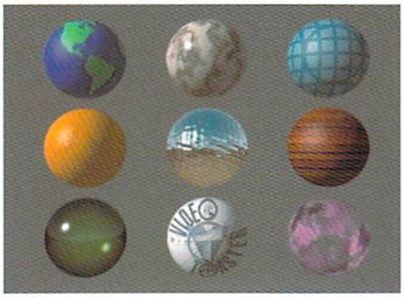
LightWave Modeler includes all the powerful object creation tools you expect in a state-of-the-art 3D system. Unique real-time perspective mode helps you visualize your object as you create it. Includes over one hundred ready-made objects.

LightWave Renderer is the best available on a personal computer, regardless of cost. Not only is it the fastest renderer by far, but it has all the features you need to create network quality 24-bit 3D graphics, including: Variable resolution (up to 1536 by 960), Ray-traced shadows, Texture mapping from live video, Bump mapping, Reflection mapping, Unlimited light sources and Particle systems with variable motion blur. *Byte Magazine* concludes, "The renderer is a masterpiece. This is hot stuff."

LightWave Animation is the most powerful, hassle-free animation system ever created. Highly interactive real-time wireframe editing will have you creating complex spline-based animations in a matter of minutes. Lou Wallace in *Amiga World Magazine* says, "Having used just about every 3D rendering package on the Amiga market, I can truthfully say that LightWave absolutely blows away everything."

2. Overlay Genlock and Luminance Key

The Toaster Genlock lets you overlay your Amiga graphics on any live video source. Used in conjunction with the Toaster's frame buffers, you can run Amiga animations over 24-bit ToasterPaint or LightWave backgrounds for dazzling results.



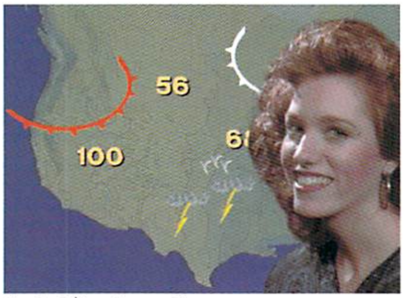
LightWave 3D



Toaster Character Generator



ToasterPaint



Genlock/Luminance Key

For more powerful overlaying capability, use the Toaster Luminance Key. Works like a Chromakey except the background is black or white instead of blue. You can, for example, key your subject in front of a weathermap or any other graphic or live video source.

3. ToasterPaint 24-bit Hi-res Paint System

The most advanced video paint program ever created for a personal computer, ToasterPaint is winning raves for bringing true-color painting to the Amiga for the first time. Using the Toaster's Frame Buffers, ToasterPaint is the only PC-based paint system capable of displaying 24-bit YIQ-encoded broadcast-quality video, in short, the sharpest video images possible from a computer.

ToasterPaint makes powerful network graphics tools easy to use. Just point-and-click for: Variable transparency, Smooth shading, Blending, Range, Colorize, Blur and RubThru. Use texture mapping to warp, bend, stretch and twist images. The Toaster's all-in-one design allows cutting and pasting between Toaster Character Generator, LightWave or grabbed video images. *Video Magazine* raves, "We were able to create images that rival those of professional video paintboxes...ToasterPaint alone may be worth the price [of the Toaster]."

4. Toaster Character Generator 24-bit 35-nanosecond resolution

With twice the resolution of any other Amiga Character generator, and over 4000 times the color, Toaster CG gives you the network quality that clients demand. Toaster CG works with the Toaster's 24-bit frame buffer and linear keyer to produce sharp, jaggie-free text with perfect drop or cast shadows. The Toaster hardware also makes other special features possible, such as transparent shadows, band-free smooth color gradations and smooth dissolves between pages. These high-end features are impossible with software-only CG's. Only the Video Toaster has 16.8 million color ChromaFonts and the ability to use digital effects to tumble, spin, peel, and warp text in real-time.

5. Two 24-bit Frame Buffers

The highest quality video output for any personal computer ever. The Video Toaster has not just one, but two high resolution frame buffers that each output 16.8 million colors (24-bit). The Toaster is the only video output for the Amiga that is legally broadcastable at the network level. Our unique YIQ-encoding means Toaster colors won't bleed, Toaster edges won't crawl, and Toaster pixels won't smear — in other words, the sharpest video image possible.

The Video Toaster meets not only all RS-170A specs but the tougher FCC specs as well. Don't be fooled by low-end "24-bit video converters" that trade resolution for more colors. Only the Toaster can output full NTSC resolution, YIQ-encoded video at 60 fields per second.

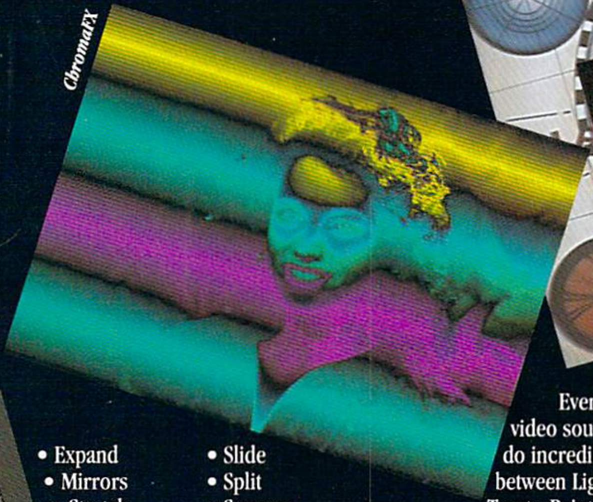
6. Toaster Real-Time 24-bit Frame Grabber

From the company that defined video digitizing standards for the Amiga comes the ultimate frame grabber. Freeze video instantly from your color video camera, camcorder, laserdisc player or cable TV, and display images in 16.8 million colors and full video resolution. With a Toaster-compatible TBC installed (starting at $995 retail), you can grab frames from any taped video source as well. The frames may then be used by ToasterPaint, ToasterCG or LightWave 3D for further manipulation. Images may be loaded from disk into the Toaster Frame Buffers in two seconds or less for fast-paced multimedia presentations.

and something truly phenomenal... your own TV studio.



Digital Video Effects



ChromaFX

7. Toaster Digital Video Effects

"An almost unbelievable breakthrough." That is what the press and public have been saying about the Toaster's Digital Video Effects. For the first time you can process live video on your desktop just like the networks do.

The Toaster's four custom VLSI chips let you warp any of four live video sources in real-time (60 fields per second) and in 24-bit color.



Toaster Control Panel

Toaster Digital Effects remove the last barrier to network quality video on a desktop. There is nothing else like this. These effects must be seen to be believed! *Business Week Magazine* says, "As capable as gear normally costing $60,000." Toaster Digital Effects are as incredible for multimedia and presentation graphics as they are for video production. Real-time effects include:

- Flip
- Tumble
- Warp
- Push On
- Spin
- Page Peel
- Tiles
- Push Off
- Expand
- Mirrors
- Stretch
- Zoom
- Blinds
- Slats
- Curtains
- Mosaic
- Whips
- The Transporter!
- Slide
- Split
- Squeeze
- Pull
- Roll
- Trajectories
- Analog Trails
- Digital Trails
- Zoom Trails

8. Four-Input Production Switcher

Just like the master control room of a TV station, you perform transitions between video sources with a click of your mouse. The Video Toaster Switcher outperforms broadcast switchers costing tens-of-thousands of dollars. It performs cuts, smooth fades, and pattern wipes between any of seven sources including four live video inputs, two 24-bit frame buffers, and a color background generator — ideal for four-camera studio productions or post-production video editing.

Even with no live video sources you can do incredible effects between LightWave, ToasterPaint, and ToasterCG images for exciting presentations.

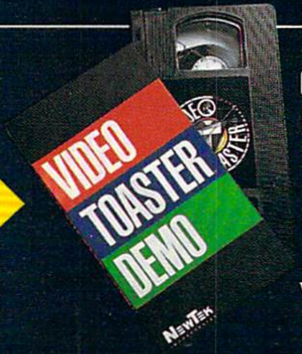
9. ChromaFX Color Processor

ChromaFX gives you complete control over all aspects of brightness, contrast and color of your live video image. Your screen will explode with color negatives, monochrome, solarization, posterization, and color vignettes. Process your video to look like old film with sepia toning or high contrast black-and-white. Or get that rock video look by mixing black-and-white and color video. In addition, many subtle effects are possible, like day-for-night or dark sky filters. Powerful controls let you design your own color effects with limitless combinations, or use any of the dozens of built-in effects like Nuke, Chrome, Snow Lights, Snow Cycle, Sunset Filter, Zebra Stripes and many others.

The VideoToaster card & software sell for $1595 and are available at an Amiga dealer near you.

NewTek INCORPORATED

Video Toaster, LightWave 3D, LightWave Modelor, ToasterPaint, ToasterCG, ChromaFX are all registered trademarks of NewTek, Inc. Amiga is a registered trademark of Commodore-Amiga, Inc. Any video tape input to the Toaster must be time base corrected. Toaster compatible time base correctors start at $995 retail. The Video Toaster requires an Amiga 2000 computer with hard drive and at least 5 megs of RAM. © NewTek, Inc. 1991.



Call today for our demonstration tape about the Toaster, produced entirely with the Toaster.

See for yourself the incredible results possible with the Video Toaster.

Starring NewTek's own Kiki Stockhammer, and featuring animation by 3D artist and LightWave programmer Allen Hastings. Like the Toaster itself, this videotape will knock your socks off. $4.95 including shipping and handling. Visa, MC, AmEx or COD orders accepted. Call (800) 843-8934 or (913) 354-1146.

$4.95 including shipping and handling

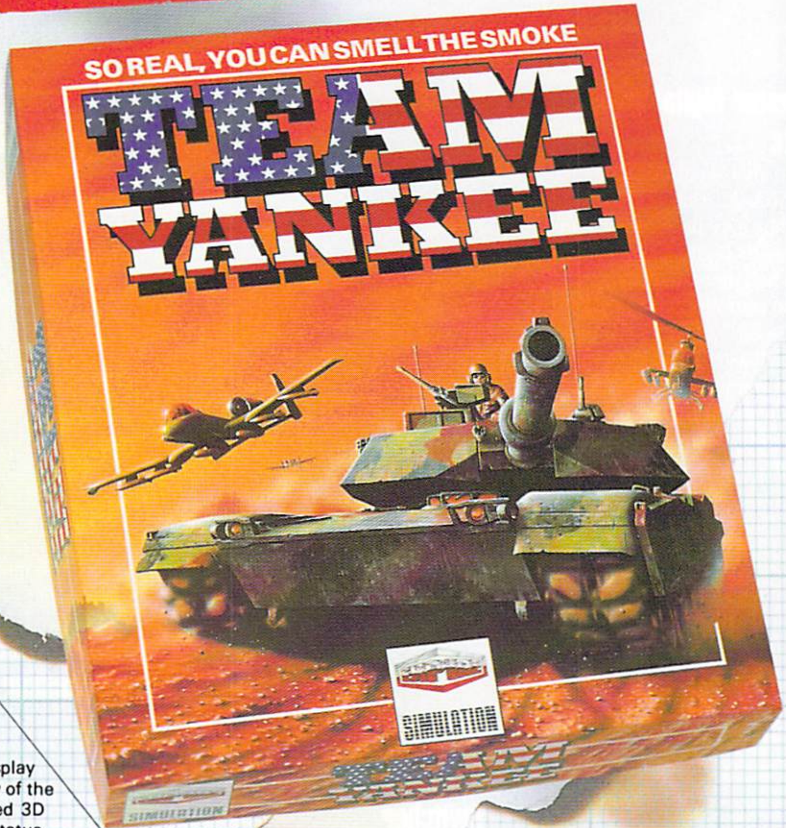
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"ROMEO 25 - THIS IS MIKE 77 - SPOT REPORT - 5 T72 TANKS MOVING WEST - GRID 190852 - CONTINUING OVER"

Capt. Sean Bannon snapped his head to the left. There was only one place where the Russians could be, and that was on the hill 2200 metres away. All the training, planning and preparations were over. Team Yankee was about to learn if the team's seventy nine men and twenty five million dollars worth of equipment could do what they were supposed to do.

Team Yankee is designed to test your leadership and tactical skills to the limit. You can display in either **"quadrant mode"** where all four platoons may be controlled at once **or** **Full-screen Mode** where the display homes in on just one platoon.





You have the flexibility to display either an overhead map view of the surrounding area, a simulated 3D view of the battlefield, or a status screen showing the performance of all vehicles in a platoon. Irrespective of which screen mode you choose during battle, there is a constant column of information to the right of the screen.

To the right of the compasses are five icons which represent the various types of **weaponry** available to the unit.

- **MACHINE GUN** - which is always available to the player and has an 'infinite' number of rounds.
- **SMOKE** - a smoke grenade which allows enemy vision to be obscured.
- **HEAT** - a high explosive anti-tank round
- **SABOT** - an armor-piercing tungsten shell
- **TOW** - a high-range anti-tank missile

The major capability on the quadrant map screen is to alter the movement and formation of any platoon. The whole of the map may be viewed at once, or you may zoom into any portion of the battlefield using the icons to the right of the map.



Team Yankee is the definitive action simulation of modern tank warfare. Watch scenarios unfold on 3D battlefields with high definition graphics and keep track of the four tank platoons you control using the unique 4 quadrant display. Defend Hill 214 from Yuri Potecknov's crack tank platoons, attack Objective Link through sniper fire from forests, protect the Langen Gap from an entire Soviet tank battalion at night!



Engine smoke This will prove very useful in confusing your enemy if you find yourself in a tight corner.

Rotation icon and compass display.

Infra red (or thermal) **imaging** This feature is very useful for identifying vehicles camouflaged on the edge of forests. Contary to popular belief the thermal image is green and not red.

Zoom. When this icon is accessed the central portion of the screen is magnified by a factor of 10.

Laser range finder. The range finder will lock on to a reflective target if the firing cursor is placed directly over the object.



Wide formation icon. This increases the spacing between vehicles in your platoon to 100 metres.

Narrow formation icon. This reduces the inter-vehicle spacing in your platoon to 50 metres.

Vee. a vee formation.

Echelon left - places your vehicles on a right to left diagonal relative to your direction.

Wedge - places your vehicles in a wedge formation.

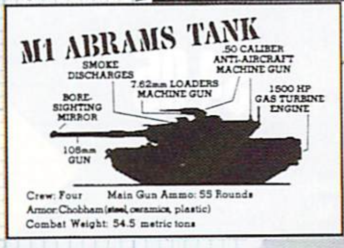
Scroll icon: The four arrows underneath the ETA display allow you to scroll your mapin any of the four directions.

Dead Stop icon. This red icon, causes your platoon to come to a dead halt when clicked.

In line - places your vehicles in a line abreast relative to your direction.

Echelon right - places your vehicles on a left to right diagonal relative to your direction.

Column - places your vehicles in a line ahead relative to your direction.



Five major scenarios based on the battles featured in the New York Times No. 1 best seller Team Yankee.

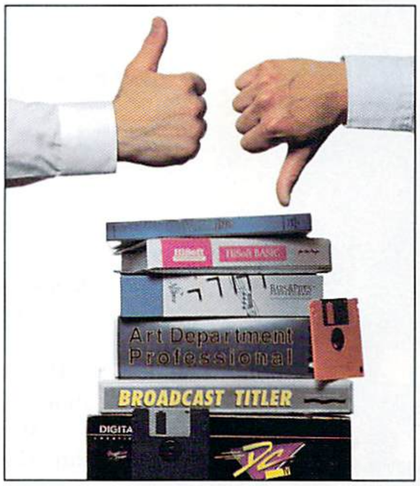
SIMULATION

ReadySoft Inc, 30 Wertheim Court, Unit 2, Richmond Hill, Ontario, Canada L4B 1B9. Tel: (416) 731-4175 Fax: (416) 764-8867

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VOLUME 7, NUMBER 7 JULY 1991

CONTENTS



*Whether it's the aye's, the nay's, or the maybe's that have it on our cover (inset above), **AW** has been gathering the ballots over the last few weeks on a great many new Amiga products to bring you our **Annual Review Issue**. Hardware, software, programming, games—the whole gamut—are up for evaluation and comparison in this very special review number. So get involved and go check out the fruits of our labor!*

FEATURES

COLUMNS

DEPARTMENTS

REVIEWS

GAMES

COVER PHOTOGRAPH BY ED JUDICE

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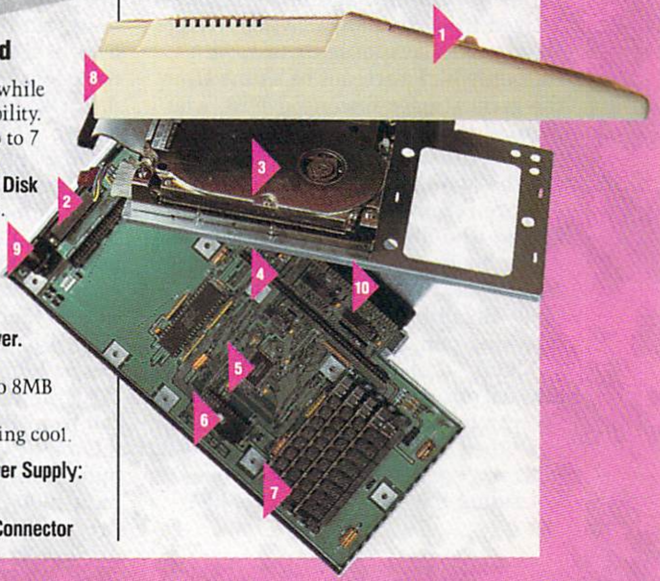
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CHIEF CONCERNS

Why my job is so great.

I TALK TO a lot of readers, most often at shows or just on the phone. Sometimes, not always, I can tell they are excited. "Hey, I'm talking to the Editor of *AmigaWorld*." I know I am that way when I meet a celebrity, or maybe a successful person in a field I admire. It's special.

But I've got to admit something right now. I might as well, because you'd find out eventually anyway. I am nothing special. Ask anyone. I'm really more of the average Joe, and usually just as happy to meet you as you may be to meet me.

I am, however, lucky. I've got the best job this side of Mississippi. And a few quick stories will tell you why.

Shortly after joining up, I heard that Arthur C. Clarke read *Amiga-World*, and sometimes wrote to us. So I waited, patiently, and finally a letter arrived from Sri Lanka. Whoa, Nellie! With a quick response or two, we suddenly had a stream of letters from the great science-fiction novelist, who penned his latest classic, *The Ghost from the Grand Banks*, after checking out the Mandelbrot Set on his A2000.

More recently I talked to Ernie Colon, who illustrates Mighty Mouse comic books, and is an energetic new Amiga fan. In fact, he plans to eventually do all his work on the Amiga, throwing pen and paper to the wind.

Thanks to *AmigaWorld*, I am now also friends with a professional bike racer, a breed I respect above almost any other. Former Olympian Norman Alvis is a big Amiga fan who, when not riding the Tour de France, likes to play golf simulators. In fact, team sponsor Motorola even gave Norm a 68030/68882 to put his 500 into high gear.

This celebrity/Amiga connection is pretty wild, but in some ways is less exciting than our contact with lesser-known readers. About a year ago, we put ads in the magazine asking for submissions for our Animation Video Volume II. Within weeks, boxes were filling up with disks and tapes, and Lou Wallace and Mare-Anne Jarvela loaded and viewed each and every one. After Lou came back from LA Videograms with a VHS dub, the whole staff sat down to view the tape and pick our contest winners.

This was impressive stuff! Just by asking readers to send in animations, we got true commercial-level results, not only in the quality of the animations, but in the gut-busting story lines as well. There is truly phenomenal talent in this market, and we at *AmigaWorld* are fortunate enough to tap it.

Other interesting things come my way because of this job. For instance, a few months ago I got a letter from Marine CPL Jeff Birney, who was stationed in Saudi Arabia. We sent him off a bunch of issues he'd missed, and shortly thereafter I got a letter from him containing my own personalized Desert Shield/Desert Storm dog tags.

About a month later, I got a phone call from Birney from Saudi Arabia to tell me he'd painted "To Saddam. Subscription Enclosed. Doug Barney." on a 1000-pound bomb that was sent over during the fight.

We've got some pretty wild youngsters as well. Nearly two years ago at AmiEXPO in Santa Clara (three days after the San Francisco earthquake), I strolled over to the Go Amigo booth and eavesdropped on a father and son shopping for a hard drive. The kid seemed to recognize me, and we started talking, so I asked him what he did with his system. He said not much, a little genlocking, some 2-D animation, a little 3-D, you know. Maybe add some sound here and there.

Not much? This kid was in high school, and he was doing things that most computer users dream about. It was exciting to meet him!

Only last week I got a letter from Moscow. Jury Vladimirov gets *Amiga-World* whenever he can, and uses his computer for video titling. A letter like that will make your day. Then, a few days later, I heard from a user in Lithuania. I've had similar mail from South Africa, the Middle East, Europe. Even Leominster, Massachusetts, for goodness sake.

So if you run into me, don't be too impressed, but stay in awe of people who really drive this market. Those like you.



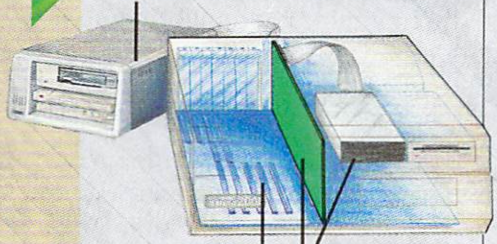
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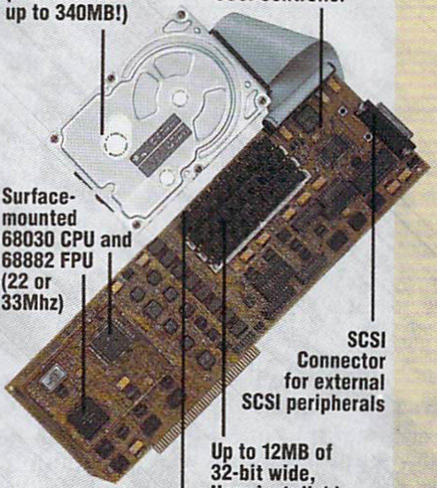
IMPACT Series II

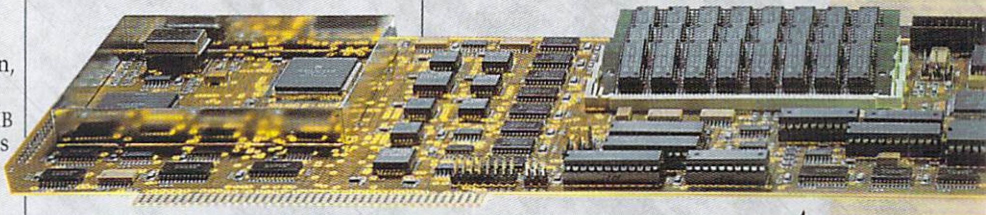
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Direct DMA access to more than 8MB of fast memory	Y	N	Y
DMA SCSI controller built-in on 68030 CPU board	Y	N	Y
Number of open Amiga expansion slots with 68030 CPU, SCSI controller and more than 4MB fast memory installed	5	3	4
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OVERSCAN

News, New Products and Networks

World of Amiga Feels Pier Pressure

NEW YORK, N.Y.—CDTV made a splash on Pier 91 in April. ***Commodore*** (RS #140) used the World of Amiga show to sell its first CD-based Amiga units to the eagerly awaiting public. The offices back in West Chester must have nearly emptied in order to man the booth with its multilayered demonstrations. President Jim Dionne, Nolan Bushnell (General Manager, Commodore International Consumer Products Interactive Division), and CDTV chief Gail Wellington headed the list of Commodore luminaries available for questioning. They even let CATS (Commodore Applications Technical Support) staffers out of the bag for a developers' conference, where CBM urged attendees to develop for the CD-ROM system.

CDTV shared the spotlight with a number of products, including ***Digital Micronics'*** (RS #101) 60 MHz graphics processors. The **DMI 020** offers the full 16-million color spectrum ($1595, 24-bit, 1280 × 1024 resolution), while the **DMI 010** eight-bit ($835, 1024 × 800 resolution) version provides 256 active colors from a palette of 16 million. The company also offers internal and external **20MB Insite Floppy/Optical Drives** that accept 3½-inch high-density floppy disks.

TTR Development's (RS #102) large booth drew large numbers. The firm's new Digital Audio Tape drive, the **1.3 Gigabyte DAT SCSI System** is available in internal ($1649.95) and external ($1849.95) models. Both provide a pass-through kit, a 120-minute tape with 1300MB of storage, and claim a sustained data-transfer rate of 11MB per minute. TTR also showed its **SCSI Streaming Tape System**, which allows for 12- to 16-bit compression for even more storage room. Each kit ($619.95 to $899.95) comes with a tape unit, cartridge, software, cables, and a pass-through SCSI port for daisy-chaining external units.

Usually sedate show attendees suddenly became performers at ***The Vivid Group's*** (RS #103) booth, where **Mandala** was on display. People took turns making dance-like movements as they "played" instruments displayed on screen. Until

Continued on p. 12.

When You Lease Expect It

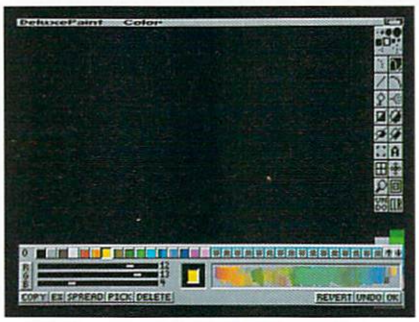
With the formation of Commodore Leasing, a national program, CBM becomes one of the few personal-computer manufacturers to endorse a leasing plan. The new enterprise, implemented in conjunction with leasing giant Master Lease of Berwyn, Pennsylvania, enables customers to lease A500Ps (Professional) or any of the A2000- or A3000-series machines.

Ron Stanczak, CBM VP of Professional Sales, says that the program can help businesses stay competitive during an economic slowdown because no down payment is required and everything—equipment, software, and monthly maintenance—can be included in the lease. For details, call CBM at 215/431-9100 or Master Lease at 215/651-5000. *—BG*

A New Coat of Paint

Ever so quietly, ***Electronic Arts*** (RS #118) has been working on a major upgrade of DeluxePaint. An early prerelease copy of **DeluxePaint IV** promises significant changes, including added support for 4096-color HAM (Hold-And-Modify) mode. To accommodate the new color options, the original palette requester has been discarded in favor of a Color Mixer that allows you to combine colors as if you were actually mixing paint. You can also create up to eight palettes having 32 colors each.

A new animation-control panel that you can toggle on and off gives you all the animation features of DeluxePaint III, plus the abilities to play a sequence backwards and to select the new Lightbox feature. Lightbox, which is similar to Disney Animation Studio's (Disney Software) onion-skin display, allows animators to see either the preceding or following frame while working on the current frame.



DeluxePaint IV's new Color Mixer.

With Translucency mode, you define a color and intensity. Then, when you draw or paint on top of an existing image, that image emerges tinted, with its original colors altered to a third shade. One of the most impressive new features, Metamorph, allows you to create an animbrush (with a definable number of frames) from any two still brushes. Let's say you selected a brush of a beach ball and another of an airplane. Choose Metamorph, indicate 12 frames, and in just a few minutes, you will have an animbrush that changes from the ball to the plane in 12 frames.

Stenciling has been improved, and the Gradient Fill tool now offers five types of gradients. Also, you can now load 256-color IFF-ILBM images. Not only are there new menus and requesters, but the whole interface now has an embossed 3-D look.DPaint IV looks impressive. The scheduled retail price is $149.95, and EA will offer a $50 upgrade deal for current owners. If the program is released on schedule, you should see a review in one of our fall issues. *—LRW*

For information about the vendors of products mentioned, see "Manufacturers'/Distributors' Addresses" list on p. 96.

AMIGAS'S NAB WAR CRY: "WE DO IT AS WELL FOR LESS!"

LAS VEGAS, NEV.—The "dinosaurs" are starting to worry. At the National Association of Broadcasters' (NAB) 1991 convention, general-purpose personal computers appeared to outnumber the dedicated systems for the first time. Prominent among the PCs, the multitalented, affordable Amiga made a strong case for the fact that single-purpose, extremely expensive systems are becoming a thing of the past.

While the Amiga was spotted in several of the major players' booths, ***NewTek*** (RS#122) and its **Video Toaster** were the focus of most of the Amiga attention. You could not enter the West Hall exhibit area without noticing NewTek's booth, which was positioned right in front of the door. In fact, you could not get in without maneuvering around the crowd listening to the almost constant Toaster demo. Making their debut at the show were a new screen of effects and the stand-alone Toaster system ($3995)—an Amiga 2000 with a 52MB hard drive, 5MB of RAM, a Video Toaster nameplate, and, of course, a Toaster.

Representatives were also touting the number of Toaster-compatible products (as many as 35) on the way from third-party developers. Among the 19 officially announced were: ***Diaquest's*** (RS #123) **DQ-TACO Toaster Animation Controller** ($1795); ***Nucleus Electronics'*** (RS #124) **single-frame controller** ($425); ***Vision Quest's*** (RS #125) **Vision 1 Time-Base Corrector** ($1995); ***Computer System Associates'*** (RS#126) **Toaster Accelerator Card** (an '040 with 4-6MB of 32-bit RAM); ***Kara Computer Graphics'*** (RS #127) **Toaster ChromaFonts**; and ***Shereff Systems'*** (RS #128) **Cinnamon Toast Fonts**.

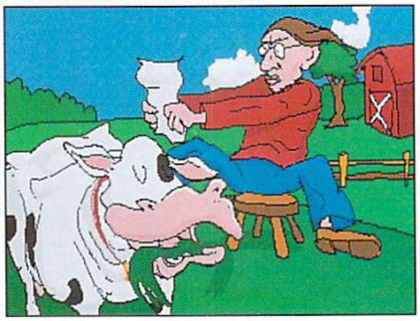
Down the aisle, ***Digital Creations*** (RS #129) threw in the **Kitchen Sync** ($1895), an internal dual-channel TBC with a built-in sync generator and processor/amplifier features. S-Video outputs are optional.

In the main hall, ***Midwest Communications'*** (RS #130) booth had knots of attendees around its demos of the Toaster and the ***Digital Processing Systems'*** (RS #131) **Personal TBC** ($995). The single-channel TBC fits into an IBM PC slot and offers S-Video in (but not out) and genlocking capabilities.

RGB Computer & Video's (RS #132) **AmiLink** system was in two places simultaneously—at both RGB's booth and ***Panasonic's*** (RS #133). A complete editing system, AmiLink replaces dedicated components with a single, integrated program. The optional VT software module pulls Toaster control under the same point-and-click interface.

If all the seats at the RGB booth were filled, showgoers could see AmiLink/VT, the Toaster, the Amiga, and Panasonic's **AG-7750** ($6500) and **AG-7650**

Continued on p. 12.



The farmer contemplates a milking machine.

HOLY COW. . .A WINNER AT LAST!

A simple tale of farmer and cow suddenly goes haywire, plunging us into pastoral pandemonium—that's what won the Grand Prize in *AmigaWorld's* Animation Video Contest II.

Congratulations go to **Brian Allgeier** of Roswell, Georgia, for "Don't Moo Over Spilt Milk," featuring a dull-witted farmer and his tragic cow who mix it up with a crazed milking machine. Allgeier started out last summer using DeluxePaint III (Electronic Arts) on an A500 with 1MB of RAM, but shifted to an A2500 with 7MB of RAM when he became a student at Savannah College of Art and Design in the fall. Allgeier not only won an A3000 and a Video Toaster (NewTek), but also an A in his computer project. Interestingly, Brian's teacher, **Edward Kinney**, also entered the contest and won a slot on the video.

Joining Brian in the winner's circle are:

Best 3-D: 1st Prize—**Dan Seely** for "Potshots," which won him GVP's A2000-030.

Continued on p. 12.



ON-LINE SCAN

By Tim Walsh

The hours I spend in the name of journalism scanning the networks for the best in freely distributable Amiga software make for great sport. The fun factor notwithstanding, it is my responsibility to pass along information on the choice picks I find. Although there has been no recent shortage of frilly fonts to fiddle with and angry aliens to annihilate, this month I feel compelled to set aside discussion of software in favor of a more important issue.

A heavily downloaded text file called **MODEMTAX?.LZH** (Library 1, File #11050 in the Amiga area on GEnie) tells, in somewhat awkward detail, how computer telecommunications may soon fall prey to government officials in Washington. According to this file, an FCC proposal now under consideration would require modem users to pay extra charges for use of the public telephone network that carries their data. It seems that if this goes through, modems might become a source of additional revenue for a certain telephone company struggling to increase income lost to deregulation.

Most of us remember when monolithic Ma Bell cast a shadow larger than any other utility company. Thanks to the efforts of consumer groups, longstanding laws were changed during the 1970s and 80s, and the massive shadow began to ebb. People started buying their own telephones, rather than paying exorbitant lease fees, and competing services sprang up across the land. As a nation, we issued a collective sigh of relief.

Now we hear rumors of that shadow beginning to form again. The GEnie file states that if the special-interest lobbyists have their way, we will see increases as high as $6 per hour for use of the public telephone lines. Financial pressures would then probably make many Amiga users abandon the networks, thereby losing valuable access to the freely distributable technical and creative files that these channels make available.

GEnie subscribers can learn more details by downloading the message. Those of you without GEnie accounts can still join the letter-writing campaign. Send your comments to these addresses taken from the MODEMTAX?.LZH file:

Chairman of the FCC
1919 M St., N.W.
Washington, D.C. 20554

Chairman, Senate Communications Subcommittee
SH-227 Hart Building
Washington, D.C. 20510

I am certain most Amiga users will agree that regulations made in the interest of telephone company profits are unwanted and unnecessary. ►

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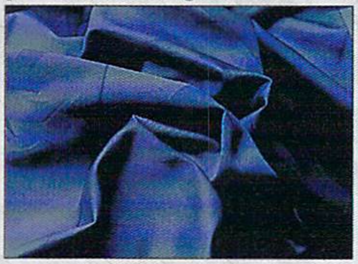
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in IFF picture format (HAM also supported), allowing custom backgrounds to be easily created and added.

Symbols. Scala includes many useful presentation symbols such as, male, female, arrows, vehicles, etc. Symbols are stored as IFF brushes, allowing custom symbols (or other objects) to be easily created and added.

Typography. Scala includes SEVENTEEN fonts, each of which is available in many different sizes and weights.



Special effects such as tilting, underline, drop shadow, 3D and color can be applied to any individual letter, word or line. The video enthusiast will find several typefaces especially suitable for video titling purposes.

Transitions. Scala offers more than SEVENTY special effects transitions for control of transitions between pages of a presentation and how and when text, symbols or objects appear on a page. These transitions allow you to soften or accentuate changes and liven up your presentations. The speed of any transition and display times can be fully controlled.

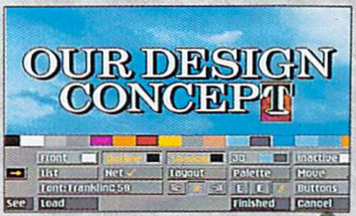


Animations. Scala is able to load and play back animations at any point within a presentation. Text can be added and super-imposed on an animation while it is being played back.

Output. Transferring output to different media is no problem with a duo like Scala and the Amiga. Using well-known Amiga tools, presentations can be genlocked, recorded on video tape, printed on polaroids, etc. Scala includes ScalePrint which can print out a complete presentation or just a cue for your speech. PostScript printers are supported.

Other Features. Page layout and attributes can be saved and re-used later to ensure a consistent appearance within a presentation. ASCII files can be loaded and formatted onto these pre-defined layouts. Any object or part of a screen can be defined as a "button", allowing "run-time" selectable flow of presentations by the simple click of a mouse button. Mouse buttons act as a "remote control", allowing forward and backward control of the presentation or overriding display times.

. . . . .



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GVP

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World of Amiga. . . *from p. 8.*
recently, The Vivid Group sold the product only as part of the Mandala Virtual Reality System—an entire setup that the company installs. The software-only version, which lets you create interactive environments, is now available for $495.

Beta Unlimited (RS #104) generated interest for its **AudioLink** sound sampler. For $1295, you get 16 voices, 16 multiple out ports, 1MB of RAM (with room for 16MB), and space for a direct-to-disk transfer card. AudioLink's software lets you generate 16-bit instruments and features real-time playback, cross-fading, multiple save formats, and variable left and right gain.

Great Valley Products (RS #105) featured its **Impact Series II** memory/hard-drive option expansion cards, magneto-optical drive systems, and streaming-tape back-up systems. GVP's accelerator line is now led by a 50-MHz 68030 CPU and 68882 FPU with 4MB of 32-bit wide RAM installed, although a soon-to-be-released 68040 board will no doubt quickly be joining the competition for the lead.

Octree Software (RS #106) announced **Caligari Broadcast 2.0** ($3495), now with a real-time, second-generation, virtual-reality interface. Its new modeling capabilities include single-point editing, mirroring, and slice and sweep operator functions. Broadcast also offers interactive, spline-based, real-time animation and frame-buffer compatibility.

The release of the **Grand Slam** hard-disk controller was the focus of talk at the ***Interactive Video Systems*** (RS #107) booth. The new board is a up-scale version of the Trumpcard Professional, offering an on-board parallel port and sockets for 8MB of RAM.

The **CDx-650 CD-ROM System**, a 650MB compact-disc drive that comes with a disc containing over 500MB of PD software, drew its own crowd in the ***Xetec*** (RS #108) booth. Xetec's **MOx-600 System** was also a draw among those needing high-capacity rewritable storage. This magneto-optical drive system makes use of a 600MB removable cartridge. Both products require SCSI interfaces, and Xetec gives you a price break on a FastTrack DMSx SCSI adapter when you buy an optical system.

Concise Logic (RS #109) announced **Scannery 1.1** ($250), a software package for use with the HP ScanJet and ScanJet Plus scanners. The latest version features 256 gray-scale images; horizontal and vertical resolutions of 12 to 1500 dots per inch; horizontal and vertical scaling from 1 to 50 in increments of 1/100 of a unit; 255 brightness settings; 255 contrast settings; four dither patterns; image inversion; automatic background control in black-and-white mode; and expanded file-format support.

That covers the highlights on the hardware and productivity side. Now over to Peter Olafson for a report on the entertainment products. . .

—JJ

Unlike the AmiExpo show held just three weeks earlier, the April World of Amiga had lots to offer entertainment enthusiasts. The majority of the games on display were in CDTV format, and many of these titles were a mystery. Literally.

They included **The Case of the Cautious Condor**, a 1937 whodunit from ***Tiger Media*** (RS #110); **Many Roads to Murder** and **Murder, Anyone?**, both from ***CDTV Publishing*** (RS #111); **Psycho Killer**, from On-Line (RS #112); and **Sherlock Holmes, Consulting Detective**, from ***Icom Simulations***, (RS #113). I suppose you could even count among the mysteries ***Edge Interactive Multimedia's*** (RS #114) **Snoopy: The Case of the Missing Blanket**, billed as an "interactive cartoon."

On the more traditional floppy-disk media, ***Electronic Arts*** (RS #118) presented Amiga versions of several popular titles: **PGA Tour Golf, Centurion: Defender of Rome, Chuck Yeager's Advanced Flight Trainer 2.0, Ski or Die,** and **Bard's Tale III: The Thief of Fate**—a giant role-playing game with 80 dungeon levels and automapping. Most were to be priced at $49.95.

Sierra (RS # 119) showed Hero's Quest II. . . er, let's make that **Quest for Glory II: Trial By Fire**. (Sierra changed the name of the series to avoid confusion with a Milton Bradley board game.) Glory is an Arabian-themed sequel to the earlier Hero's Quest, and covers *eight* disks! A Sierra representative mentioned that a version of the original King's Quest, with enhanced graphics and sound, is in the works.

From Sierra's ***Dynamix*** division (RS #120) came a pretty Amiga version of the futuristic tank game **Stellar 7**. ***Spectrum Holobyte*** (RS # 121) demonstrated a beta version of its new Vietnam-era flight simulator, **Flight of the Intruder**. Based on Stephen Coonts' best-selling novel, it is set in 1972, and permits control of up to eight planes (four A-6 Intruders and four F-4 Phantoms) in a single mission.

—PO



OVERHEARD

NewTek's Video Toaster, that so-called "exciting and complex piece of equipment," now has the support of a dedicated users' group in the Los Angeles area. For further information on the group and its activities, contact event organizer Lee Stanahan by phone or fax at 818/505-1464, or via electronic mail: GEnie—K.Nelson15; CompuServe—72760,2373; PeopleLink—BreadBox-Lee.

Holy Cow. . . *from p. 10.*
2nd Prize—**Bert Huntsinger**, who garnered Imagine (Impulse) for "Digital Frankenstein."

Best 2-D: 1st Prize—**Michael Salva**, who picked up DCTV (Digital Creations) and Sculpt 4D (Byte by Byte) for "Amoeba On The Floor."

2nd Prize—**Robert Jackson**, whose "Failure" won him PageRender3D and PageFlipper Plus F/X 2.0, both from Mindware.

Best Story: 1st Prize—**Chuck and Chris Waite**, who earned a SuperGen 2000S genlock (Digital Creations) for "Looney."

2nd Prize—**Brad Schenck** for "Off the Record," which netted him a copy of 3D Professional (Progressive Peripherals).

Of the 600-odd entries (many times more than the first contest), 42 were accepted for this 90-minute Animation Video tape. According to contest editors Lou Wallace and Mare-Anne Jarvela, the submissions for our Animation Video Contest II were longer, on average, than those of last year's contest, which resulted in a 48-minute tape with 60 animations.

They explained that this year's emphasis on a story line—in addition to good technique—accounted for the increased length of the submissions. *AmigaWorld* staffers judged finalists using a two-part scoring system to evaluate both technique and story line.

After we give Wallace and Jarvela some time to recuperate, stay tuned for AV Contest III!

—JJ

NAB War Cry. . . *from p. 10.*
($4500) S-VHS decks working together to outshine the IBM and Mac demonstrations that rounded out Panasonic's desktop-video display.

Also doubling its coverage, ***Octree's*** (RS #134) **Caligari Broadcast 2.0** ($3495) showed off its new modelling capabilites with a Targa board in the ***Truevision*** (RS#135) booth and with the **PACE** single-frame controller ($3195) in the ***Videomedia*** (RS #136) booth.

While somewhat hidden in ***Sony's*** (RS #137) massive booth, the Amiga was there, too. Tucked into the Hi-8 editing suite with the **EVO-9700** ($7600), it was hooked to ***VidTech's*** **Scanlock** genlock ($995) and running a titling program.

Perhaps the largest Amiga exhibit was the one in which it was least evident. The video wall from ***Forum Communications*** (RS #138), which uses Amigas to drive multiple-source video systems, grabbed everyone's attention on the way to seminars and the press room.

NAB '91 legitimized the Amiga in the broadcast community (I could not even have lunch without overhearing Amiga/Toaster conversations). Even the skeptics had to admit that last year's "flash in the pan" has spread like wild fire, and the dinosaurs are getting burned. *—LL*

Overscan is compiled by Barbara Gefvert, Janine Jackson, and Tim Walsh. Send your news, new products, and network information to Overscan, *AmigaWorld* Editorial, 80 Elm St., Peterborough, NH 03458. ■

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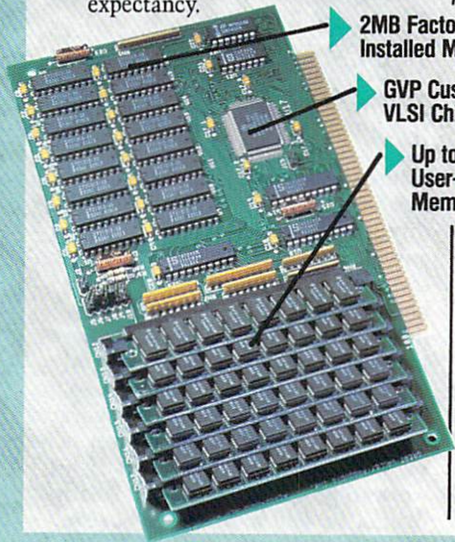
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Art Department Professional

When your pictures look good, you look good.

By Mitch Wells

WITHIN THE LAST year, three product announcements generated a lot of excitement within the Amiga community. We finally got the Video Toaster, a major stride in professional desktop video production. Next came DCTV, which admirably meets its goals as an affordable professional full-color paint system. Now we can welcome with open arms ***ASDG***'s Art Department Professional (AD Pro), an image-processing package geared to those who use the Amiga for output to video, film recorders, PostScript printers, and high-resolution/full-color graphics boards.

AD Pro's strong points are its image conversion between formats, resolutions, and number of bit-planes; image scaling; dithering; image compositing; image cropping; and anti-aliasing and display technologies. In addition, its modular design includes the use of separate image-data loaders, image-data savers, image-processing functions (called operators), and flexible ARexx implementation.

The Image Ambassador

AD Pro's most striking feature is the way it handles bitmaps. It converts all bit-maps—regardless of resolution or number of colors—into 24-bit color data (if memory allows), or eight-bit gray-scale data if only equal values of RGB are present in a picture. Because all color data is in 24-bit format (providing up to 16.7 million colors), AD Pro can composite or manipulate any number of pictures with any color/palette structure. You can then rerender for display within various Amiga and non-Amiga resolution/color combinations with amazing results.

Further, AD Pro's dithering technology allows for pictures having a limited number of colors in their palettes to appear as if they have hundreds of colors. This is possible because—although Amiga displays contain only 15 discreet values of red, green, and blue—AD Pro calculates all changes to a picture with 255 steps of these colors. This gives many more color choices for dithering, palette matching, or anti-aliasing.

AD Pro can also directly load 24-bit images for manipulation and conversion. Full-color formats that AD Pro will load include IFF, up to 24 bits of color; Digi-View (NewTek), 21 bits; DeluxePaint II Enhanced (Electronic Arts), 256 colors, an IBM format; GIF, with up to 256 colors; Impulse RGB8, used by Turbo Silver (Impulse) to store 24 bits of color; PCX, another IBM 256-color format; HAM-E (BlackBelt Systems); MacPaint; Sculpt (Byte by Byte), a 24-bit color format used by Sculpt-Animate 4D; Mimetics FrameBuffer; and 3D Professional (Progressive Peripherals).

Separate loader programs available from ASDG will handle TIFF, Targa, and Caligari Rendition (Octree Software), and others will undoubtedly become available as the need arises. AD Pro even includes a loader to create graduated backgrounds in 24 bits of color! Images loaded in 24 bits can be manipulated and then either rendered and saved in standard Amiga formats or converted into other 24-bit formats for display on other systems or graphic boards.

Because AD Pro is a modular system, image loaders, savers, and manipulation operators are all separate programs. It comes with the following format savers: IFF (including up to 24 bits of color), DeluxePaint II Enhanced, GIF, Impulse's Firecracker 24, PCX, Sculpt, Mimetics' FrameBuffer, Progressive Peripherals' FrameGrabber, and PostScript. The last four are of great importance when considering AD Pro's flexibility.

The FrameBuffer, Firecracker 24, and FrameGrabber savers are not file savers per se; instead they communicate directly with hardware attached to or installed inside A2000s, A2500s, or A3000s. When saving a file, these modules display on the appropriate hardware device in 24 bits of color. Consequently, AD Pro is capable of being the central controller program in an environment that might include an Amiga with a full-color/high-resolution graphics card. It could also include an Amiga with other hardware/software combinations, such as a single-frame video controller (using MicroIllusion's Transport Controller software) and capable VTR, or a high-resolution film recorder.

AD Pro's PostScript saver offers additional flexibility in that it can convert and print an image loaded into AD Pro on a PostScript-compatible printer, or convert that image into a PostScript file. AD Pro can provide three- and four-color separations of any image, while allowing you to control such things as under-color removal, CMYK screen angles and densities, Gray Component Replacement, orientation, offset, crop and registration marks, bleeds, and so on. You can then save the color-separated images with the PostScript saver. This provides you with camera-ready artwork to be output from a PostScript printer or sent to a service bureau.

The Great Manipulator

AD Pro's image-manipulation operators convert color images to gray scale, and gray scale to color, so you

For information about the vendors of products reviewed, see "Manufacturers'/Distributors' Addresses" list on p. 96.

can combine them with other color images using AD Pro's compositing tools. In addition to image cropping, AD Pro converts images to line art (using an amazing edge-detection algorithm) or to negatives, removes isolated pixels (to clean up images and scans), and performs image scaling (again using a digital-scaling algorithm so images don't look "stair-stepped"). It also performs vertical and horizontal flipping, Blur, Tile, and Noise Filter. Other standard image-manipulation features include control over brightness, contrast, and amounts of red, green, and blue color in any given image.

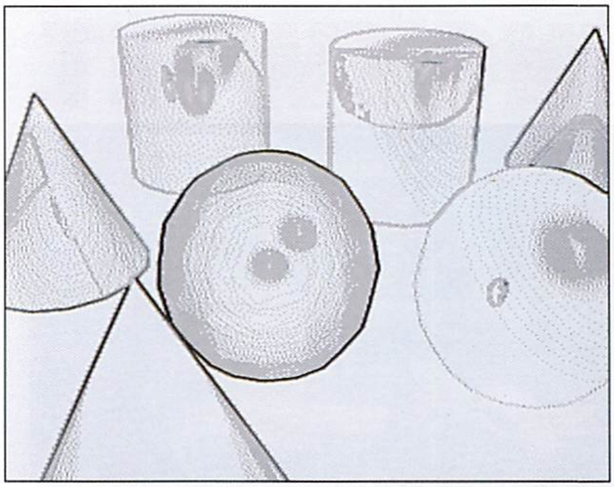
AD Pro's palette-editing tools are also flexible: You can limit the number of colors used on any given image, determine where that range of colors falls in any given palette, and match palettes between images. AD Pro also supports all Amiga display formats up to 64 colors, plus HAM, AHAM, and ARES (high-resolution, 4096-color images).

As mentioned above, AD Pro's image-compositing tools are unique and powerful. You can load an image in any color/palette combination and then place it behind or in front of another image, or mix it (using variable transparency) with any number of other images. You can specify transparent colors and image offset (position). The image can then be rendered to any displayable Amiga image format, and with AD Pro's dithering technology, composited rendered images look fantastic.

Anything that AD Pro can do—and some things that it cannot easily do by itself—can be addressed through ARexx. The documentation also includes suggestions for such things as approximating charcoal drawings and creating solarizations, drop shadows, and even an embossed look from a color or gray-scale image. I have found AD Pro invaluable in producing anti-aliased reductions of large, two- or four-color high-resolution screens, thus creating video-titling screens that rival any anti-aliased character generator available.



Is it or isn't it composite? Only the artist will know for sure.



Approximating charcoal drawings.

Using fonts from such packages as AROCK Software's Professional Font Collection or Brown-Wagh's Video Font Collection, I created titling screens using large font sizes and then simply reduced them in eight or 16 colors with AD Pro—all the while maintaining the high-resolution screen format. Although such screens undergo considerable scaling, they still end up looking much better than screens created with fonts that were about the size of the larger scaled fonts. Unlike scaling brushes with DeluxePaint III, you can use AD Pro to add colors and dithering as needed to anti-alias the screens, producing much better results than you can achieve with DPaint alone.

There is no way I can tell you all the things that ASDG's Art Department Professional can do! What I can tell you is that its documentation is thorough, it retails at $240, the program is not copy-protected, it is easy to install on a hard drive, and it requires 3MB of RAM, although ASDG recommends more. This is a *good* program.

Landscape Generators:

Scene Generator

Terrain

Digital Landscape

Vista

Vista Pro

"O brave new world,

That hath such people in't!"

By Harv Laser

MAYBE YOU'D LIKE to take an instructive look around on top of old Smokey all covered with snow...or perhaps you simply want to gyre and gimble in the wabe through some abstract fantasy land of your own creation. . .or, more mundanely, you have ►

to create a plan to pave paradise and put up a parking lot for your employers. What you need in all cases—besides your Amiga—is a "landscape-generating" package.

We will examine five such programs designed to let you create and render landscapes. (By "landscapes" I mean pictures containing mountains, hills, valleys, bodies of water, and other natural and topographical features.)

Landscape-generating software for the Amiga comes in three different flavors. Some can create landscapes based only on internal fractal generation from random number "seeds." Others can accept real-world landscape data (national parks, historical sites, cities, and so forth) and thus generate pictures of actual places. Finally, some programs can do both.

None of these programs have the immediate capability to render cities, buildings, houses, bridges, amusement parks, football stadiums, or people in the landscape. Those that accept externally created elevation maps and such, however, do have the *potential* to render man-made structures, *if* those structures are part of the imported data file.



In Scene Generator, you can harvest landscapes by planting seeds.

The Fantasy Land Creators

Scene Generator

Although Scene Generator ($49.95) from ***Natural Graphics*** lacks what one might call the "power features" and flexibility found in some other titles reviewed here, it is a totally charming and friendly program. It is also, perhaps, the best choice for someone who wants merely to create pretty, "natural-looking" landscape pictures quickly and with the least amount of fuss. With its low price tag, it's a good value.

Scene Generator accepts no external data files. (*Editor's note: We have learned that Scene Generator version 2.11 should be available by the time this issue hits the newsstands. According to Natural Graphics, some substantial changes have been made, such as adjustable camera viewpoint and direction, key-frame animation interface, the ability to load and render real-world USGS digital elevation maps, 24-bit color output support, direct support for DCTV with built-in conversion and display features, and support for hi-res mode.*)

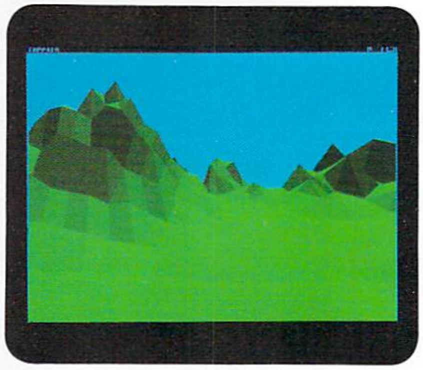
The program creates fractal landscapes based on 65,536 different "seed" numbers. You pick the number, or let the program pick one at random, and then use the fast preview mode to see your little world paint to the screen in a couple of seconds. Don't like it? Try another seed number. Using hot-keys makes this a very quick process, but you can use the mouse and menus, as well.

Once you have a scene you like, you can customize it. Land height, water level, snow level, clouds, water turbulence, 32-color range controls, "sun" placement (at nine fixed coordinates), and a few other variables are at your disposal. Although Scene ►

Generator has fewer controls than some of the other programs, there are still literally millions of possible combinations through which you can generate an endless supply of landscape pictures.

Scene Generator renders only in 32-color low resolution, with or without interlace, and saves pictures with two levels of overscan or none. There are no animation capabilities, but it can dump the displayed picture to your printer. The program saves all its internal settings with the IFF picture itself. If you create a scene you particularly like, simply load your saved IFF back in, and it's as if the program had just rendered it—with all the settings used to create that picture intact. The latest version (2.11) adds an "Xtra High Detail" mode (at the cost of rendering speed), bringing to four the number of modes offered.

Whether you simply like to make pleasing pastoral pictures to admire, or want to create interesting backdrops for montages or animations, Scene Generator is a perfect entry-level program with no real flaws or problems.



Terrain offers the possibility of locals woven from geometric fancy.

TERRAIN

The goal of Terrain ($99) from ***Impulse*** is to generate scenic objects, such as mountains, valleys, and water waves, for import into Impulse's Turbo Silver ray-tracing software. Terrain is actually an outboard accessory to Turbo Silver that can—to a limited extent—also create free-standing IFF pictures. With some exceptions, Terrain's output can also be used in Impulse's newer Imagine program and, with 3-D object-conversion software, in renderers sold by other companies, as well.

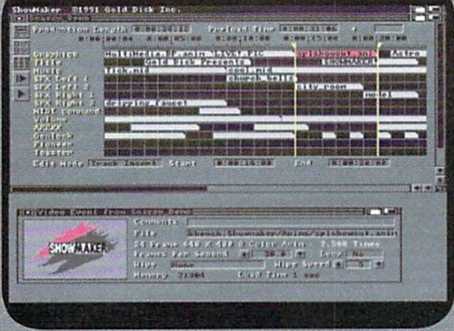
You cannot feed Terrain data that's generated externally. Using its controls, and armed with some real-world geographical maps and zero elevation data, however, you can approximate a real location by tapping the program's power and flexibility.

Terrain opens a hi-res screen and sports a few menu selections and a strip of gadgets down the right side of its window. Select New and specify how big a grid you want to work with. The default size is 1000-by-1000 units, but you can go higher or lower depending on the amount of memory you have.

Now picture in your mind this grid, laid out and floating in space in front of you, like a malleable wire or string-mesh net. Then imagine walking under your grid, grabbing parts of it and pulling them down to create deep valleys or river beds. Walk along its top-side and pull and twist other parts of it up to create mountains and hills.

The program accomplishes these feats with 2-D representations of 3-D axes. Place an axis on the grid; size, rotate, or move it around to your liking; and then add more. As long as you are aware that every axis you add represents another poke or pull at the virtual wire-mesh grid you started

Continued on p. 62.



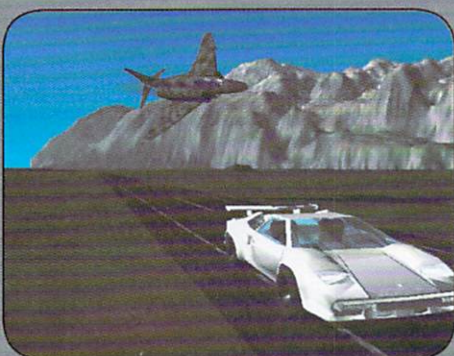


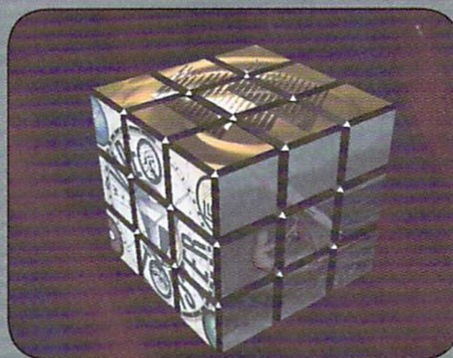


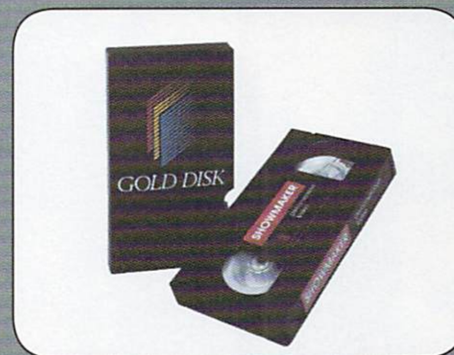
Create your production by simply dragging out segments on ShowMaker's unique time-line interface. ShowMaker automatically loads files and cues external devices without interrupting the playback.*

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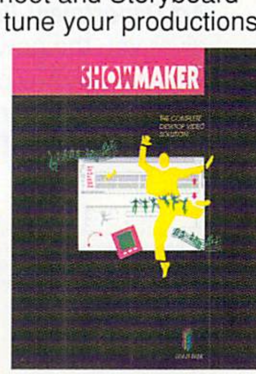
ShowMaker's unique time-line interface and advanced features make video production easy. Intelligent auto-loading* of animations means your productions are no longer limited by RAM. And our Auto-Sync* technology ensures your animations and graphics stay in sync with your music even if you change the tempo.

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ShowMaker controls the Video Toaster, genlocks, laser disc players, VCRs, and more, providing you with an easy to use, consistent interface. And *ShowMaker* uses an advanced modular driver design so you don't have to update the program to add support for new devices as they become available.

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AS

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The following names are trademarked by the indicated companies:
Art Department Professional, The Art Department – ASDG, Inc.; Amiga – Commodore-Amiga, Inc.; PCX – ZSoft Corporation; GIF – CompuServe Information Systems; TARGA – Truevision, Inc.; and PostScript – Adobe Systems Corp.

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AS THE CENTER OF THE UNIVERSE.



INPUT...

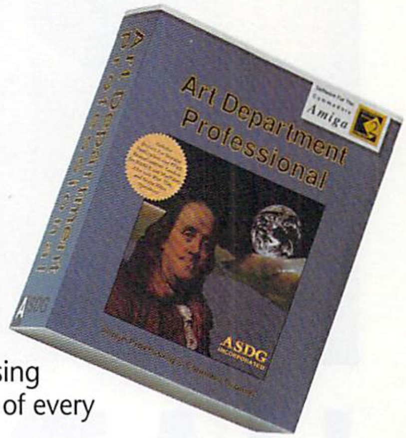
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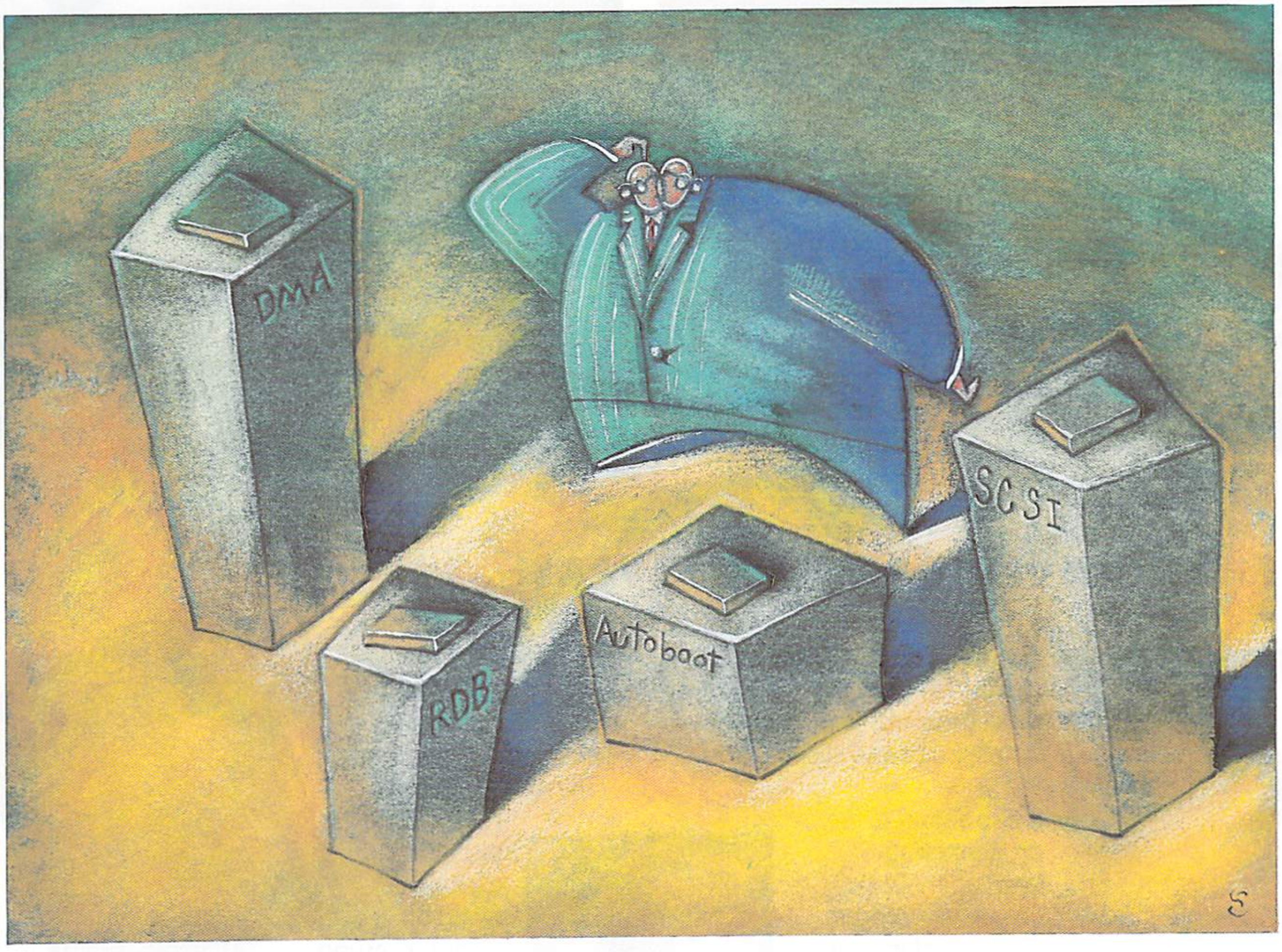


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BETWEEN A SLOT AND A



HARD PLACE...

ILLUSTRATED BY RICHARD STEADHAM

. . .lies a hard-drive interface. But which one should you choose?

Check this comparison of 14 SCSI hard-disk controllers!

By Morton A. Kevelson

Deciding that you need more disk space is easy. What follows is a more difficult task: Trying to select from among the many expansion options available—sorting through advertisements and manufacturers' claims—can make your head throb. To spare you the unpleasant sensation of being trapped between a rock and a hard place, I gathered together all the SCSI hard-drive interfaces currently on the market. I installed, tested, and worked with each one, and then drew up this report.

Because the Amiga's "native" SCSI hard disks have traditionally cost more than the ST506 and ST412 units widely available on other platforms, some developers have offered ST506/ST412 interfaces for the Amiga. Such controllers, however, have not taken hold in this market. The greater speed of the SCSI interface, its easy expansibility, and the steady decline of SCSI drive prices have made SCSI systems increasingly attractive to Amiga users. Developers are now responding with a proliferation of SCSI interfaces: The market has more than doubled in two years and continues to grow even as you read!

Although many companies sell their drive interfaces bundled with hard disks, all of them will sell you a board by itself. By electing to "roll your own" system, you can shop around for drives and select the combination of price, performance, and capacity that best suits your requirements. Depending on the interface you buy, you may also be able to add a removable-media drive to your system instead of a fixed hard disk. Because this technology is relatively new, support for it is often not apparent from the interface's documentation. If you decide that you want this feature, I recommend you consult the interface manufacturer.

To provide a uniform basis of comparison, I tested all 14 of these autobooting host adapters with the same Quantum ProDrive LP52S. Although the Quantum drive is somewhat more expensive than a Seagate drive of the same capacity (52MB), it is faster and smaller, and as such has become extremely popular. The Quantum drive's size makes it eminently suitable for hardcard configuration; that is, for mounting the drive directly on the board.

Because the hardcard setup is so common, I configured each of the boards this way. (Keep in mind that this configuration involves giving up an extra expansion slot—generally the one to the right of the card—in your Amiga.) Assembly was not difficult, and by the end of this project, I was able to put the parts together and slip the card into the Amiga in 15 minutes. Installing the hard drive in one of the Amiga's drive bays usually requires more time.

For each card tested (except for California Access's Malibu Board, which was a prototype unit), I made up a "report card," wherein I gave grades for its speed performance with the drive, the quality of the accompanying software, and the quality of the documentation. Here I also noted the hardware warranty and indicated whether the unit is compatible with Commodore's RDB (Rigid Disk Block) standard (see the sidebar "Ready for RDB?" for an explanation of this protocol). Finally, I totaled these ratings and, taking into account all these factors, plus others such as technical support and ease of installation, I summed up my opinion of each board with an overall score.

To test the speed of these boards, I used DiskSpeed 3.1 on an A2000 (see the accompanying table of speed results). The computer I used was equipped only with a Microbotics 8UP! board—containing six megabytes of RAM and one megabyte of chip RAM. The bytes-per-second reading for the create, read, and write tests are based on a 256K buffer, as it gives the most impressive results. Keep in mind that for most applications, you will use a 10K buffer, which can cause performance to slow by a factor of two or more.

Host adapters that clock speeds greater than 586K per second are pushing the limits of the stock system. Such results indicate that the board will give faster performance on accelerated systems. Another thing to keep in mind is the fact that high-capacity drives generally mean greater speed—that is, a 200MB disk will turn in faster results than the 52MB Quantum.

For information on how to contact manufacturers of the products described, see the "Manufacturers'/Distributors' Addresses" list on p. 96. ►

A2091

A2091
Commodore Business Machines
Price: $199
Warranty: One year
Performance: Very Good
Supporting Software: Very Good
Documentation: Good
RDB: Yes
Overall: Good

The A2091 is a full-length, two-layer card with sockets for RAM and a power connector for the hard drive. You can install 512K, 1MB, or 2MB of memory using 256 kilobit-by-four chips using discrete one-megabit chips. A DB25 connector is provided for external SCSI devices.

AdSCSI 2000

AdSCSI 2000
ICD
Price: $199.95
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Very good
RDB: Yes
Overall: Excellent

AdSCSI 2000 is a half-height card with mounting rails that support both the hard drive and the rear mounting bracket. A DB25 connector on the rear bracket lets you hook up an external SCSI device. Power for the hard drive is available from the board. ICD's AdSCSI 2080 ($279.95) is similar to the 2000 model, except that it is a full-length card that also accepts up to eight one-megabyte SIMMs (Single Inline Memory Modules) in two-megabyte increments. As such, it requires that you mount your hard drive in one of the Amiga's drive bays.

Jumpers on the board allow you to set AdSCSI's device number to any value between zero and seven. This is an important consideration if you want to set up a network to share SCSI peripherals among two or more computers. Be aware, however, that while the AdSCSI hardware supports SCSI networks, its present driver system does not.

Tests on the AdSCSI went extremely well.

ALF AF SCSI II, Professional 6.2

ALF AF SCSI II, Professional 6.2
Pre'spect Technics
Price: $195
Warranty: One year
Performance: Excellent
Supporting Software: Excellent
Documentation: Very good
RDB: Yes
Overall: Excellent

In Pre'spect Technics' catalog, the ALF AF SCSI II appears among 27 other varieties of the ALF interface. This array of options is not as complex as it first appears. The various models are grouped for use with the A500, A1000, and A2000, and then for specific types of hard drives and for various levels of autobooting.

The two letters in the middle of the model name identify the type of booting the interface supports and its physical configuration (in this case, Autobooting and FastFileSystem). The last three or four letters identify the type of hard drive for which the interface was designed (the MFM and RLL models, for instance, are designed to control ST-506/ST412 drives). The SCSI drives have built-in, intelligent controllers with increased storage capacity and speed.

The original premise behind ALF was to take advantage of the low-cost controllers and hard drives in the MS-DOS world by building an Amiga interface to them. The performance of the resulting interface/controller combination is optimized by the driver software on the Amiga side of the system. Each version of ALF is based on a full-length card with boot ROMs, supporting circuitry, and a specialized PC/XT-style slot. The card is then customized for the drive by installing a suitable interface or controller in the slot. In this case, a custom SCSI interface was provided.

Setup went easily. All of the set-up options were done by clicking on the proper selections in response to the prompts. An occasional off-the-cuff remark from the program ("You have an autoboot controller. Nice to know.") served to liven things up. The ALF installation disk I received contains the German keymap, but Pre'spect claims to now include a US keymap with the board. ALF's supporting software includes a hard-drive back-up utility and a collection of other programs that let you hack around the disk drive.

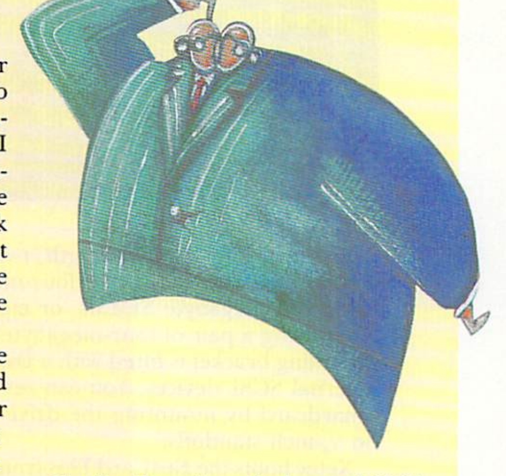
Comspec SA Series SCSI Host Adapter

Comspec SA Series SCSI Host Adapter
Comspec
Price: $169
Warranty: One year
Performance: Fair
Supporting Software: Adequate
Documentation: Fair
RDB: No
Overall: Fair

The Comspec SA is a full-length, two-layer card with a DB25 connector for external SCSI devices. The active components are mounted slightly towards the rear, necessitating the use of standoffs when mounting the drive in the hardcard configuration. This increases the height of the assembly. Although the board's manual was marked preliminary, Comspec indicated that it was not. I would feel better disposed to it if it actually were preliminary.

Apparently, Comspec did not ship us the latest set-up software, which the company claims lists the Quantum LP52S among its supported drive types. The version I received required that I manually modify an existing parameter file for an older Quantum drive before using the set-up program. To that end, I found

The Art of Assembly



UNLESS YOU PURCHASE your interface board with a hard disk attached, you will need to use a SCSI cable—a 50-conductor flat-ribbon cable with connectors at each end—to join the two components. When hooking up, make sure that pin 1 on the host adapter connects to pin 1 on the drive. Although this pin was marked on all the adapters I looked at, the label was not always easy to spot. Conversely, most hard-drive connectors do not mark pin 1. When in doubt, consult your reseller or manufacturer.

If you plan to add multiple SCSI devices to your system, be aware that only the first and last devices in the chain should retain their terminating resistors. These resistors are standard equipment on SCSI devices and usually look like little bars of caramel with short wire legs.

You can daisy-chain up to eight devices, numbered zero through seven, in your system. The default device number for autobooting hard drives is generally zero. Most host adapters reserve device number seven for themselves, but some allow you to change the designation. This is important if you want to set up a SCSI network so that two or more computers can share a hard drive. The present limitation of a SCSI network under AmigaDOS is that only one host system is allowed to write to any single partition. Shared reads, however, are permissible.

Note the distinction between the host adapter, or SCSI interface, and the SCSI controller. The host adapter connects to the Amiga and provides the SCSI bus. The controller, on the other hand, interfaces the SCSI bus to the hard drive. Most hard drives have embedded controllers.

All of the host adapters provide terminals to connect to the LED labeled "hard disk" on the front of the A2000. Jumpers are also provided to disable expansion RAM (which a handful of games and other applications find incompatible) and to disable autobooting when using the Kickstart 1.2 ROM.

Finally, if you have had your A2000 for some time and have somehow avoided purchasing a hard drive, your system may still have the Kickstart 1.2 ROM. Unless you are specifically waiting for AmigaDOS 2.0, I strongly recommend that you upgrade to the 1.3 ROM. This will allow you to boot automatically from the hard drive and eliminate the need for a floppy disk. □

—MK

myself entering such esoterica as interleave, cylinder numbers, and blocks per track, while accepting the default values for a slew of parameters I knew nothing about.

When I finished, I was pleasantly surprised to find the drive at the point that I could format it manually using AmigaDOS. The files on the boot partition, which you must format using the regular file system, must be copied via AmigaDOS as well.

Running the speed checks on a FastFileSystem (FFS) partition gave acceptable results without DMA and CPU contention. With contention, however, system performance deteriorated to less than that of a floppy drive. After running DiskSpeed for an hour and getting nowhere fast, I ceased trying to get results.

The Comspec SA manual indicates that it supports removable-media drives, including Bernoulli-cartridge drives.

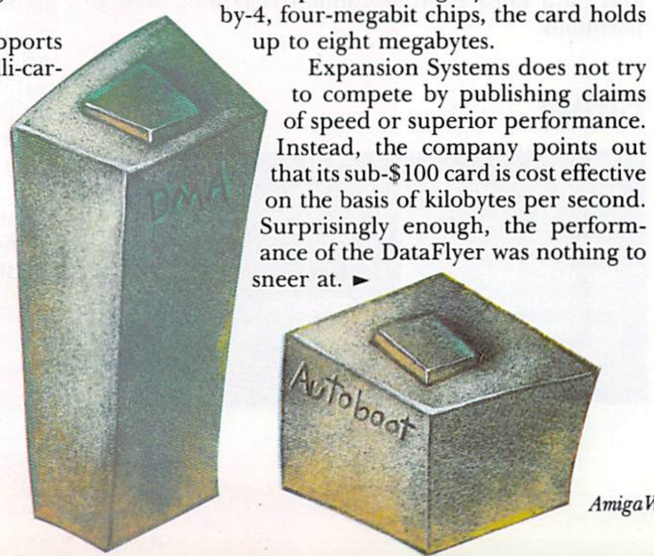
DataFlyer

DataFlyer
Expansion Systems
Price: $99.95
Warranty: One year
Performance: Very good
Supporting Software: Very good
Documentation: Good
RDB: No
Overall: Very good

Expansion Systems' DataFlyer is a bare-bones, half-length, two-layer card. In lieu of mounting rails, holes are provided so you can mount a hard drive to the back of the card. Mounting the drive in this way means that you obstruct the slot to the left of the card, as opposed to the other boards, which obstruct the slot on the right.

Optional accessories include a pair of mounting rails and a 25-pin, flat-ribbon cable with DB25-connector assembly. Expansion Systems offers an optional memory board that mounts to the DataFlyer on a 100-pin header located directly above the connector to the Amiga's expansion slot. Using 256K-by-4, one-megabit chips, you can add memory in 512K increments up to four megabytes. With 1MB-by-4, four-megabit chips, the card holds up to eight megabytes.

Expansion Systems does not try to compete by publishing claims of speed or superior performance. Instead, the company points out that its sub-$100 card is cost effective on the basis of kilobytes per second. Surprisingly enough, the performance of the DataFlyer was nothing to sneer at. ►



FastCard Plus

FastCard Plus
Xetec
Price: $150
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

FastCard Plus is a full-length, two-layer card that accommodates either two or four megabytes of RAM using one-megabyte SIMMs, or eight megabytes of RAM using a pair of four-megabyte SIMMs. Its rear mounting bracket is fitted with a DB25 connector for external SCSI devices. You can set the board up as a hardcard by mounting the drive toward the rear on 1/4-inch standoffs.

Xetec boots the FastCard Plus from a small, regular file-system partition that then transfers control to an FFS partition. The only operating disadvantage to this approach is that when Preferences saves the system-configuration file, it ends up in the FFS partition and is not found when the system reboots. You can easily fix this by using the Workbench CopyPrefs utility to transfer the system-configuration file to the boot partition. For the moment, Xetec has chosen to use this system because it makes it easy for the company to provide driver updates to its customers. The company reportedly is working on a technique to allow booting directly to the FFS while maintaining easy software updates.

Although you can change FastCard's SCSI number to any value between zero and seven, only device number seven will autoboot with the default ROM. All other device numbers must boot from a floppy disk, which you can easily format using the installation software. Custom boot ROMs, available from Xetec, will let FastCard Plus autoboot with any SCSI address.

The latest version of the FastTrak interface software supports SCSI bus arbitration. This lets you create SCSI networks, so that multiple Amigas can access a variety of peripherals on one SCSI bus. So that you can maintain security on SCSI networks, Xetec's partition utility lets you restrict access to all partitions of selected SCSI device numbers. In doing this, however, you must exercise caution regarding shared partitions.

Fireball

Fireball
M.A.S.T.
Price: $145
Warranty: One year
Performance: Good
Supporting Software: Adequate
Documentation: Fair
RDB: Yes
Overall: Fair

The first thing I discovered about Fireball was that it is not compatible with my Microbotics 8MB RAM card. The second thing I found out was that Fireball is not happy with a Micron Technology two-megabyte board, either. Only after I learned that Fireball got along just fine with the IVS Meta 4 four-megabyte board was I able to set up the hard drive and complete the tests.

Fireball is a full-length card with no less than three SCSI connectors. A 50-pin SCSI connector at the back of the card is the one to use when you configure Fireball as a hardcard. A second 50-pin SCSI connector along the top edge of the board lets you control a hard drive in one of the Amiga's drive bays. Finally, the DB25 connector on the rear mounting bracket is useful for external SCSI devices. The rear bracket is also equipped with a miniature toggle switch that turns autobooting on and off.

Fireball's EZ Prep set-up software is simple to use but short on frills. The Quantum LP52S hard drive was not among EZ Prep's repertoire of recognized mechanisms, so I had to enter the drive's parameters manually. From that point, preparing the drive and writing the RDBs proceeded quickly enough, although setting up the boot partition and copying the Workbench files had to be done manually as well.

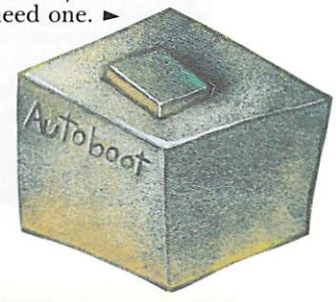
Fireball uses a data-transfer method called Direct Memory Access, or DMA. It did not excel in the speed tests; performance dropped by half with contention turned on.

HardFrame/2000

HardFrame/2000
Microbotics
Price: $249
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Good
RDB: Yes
Overall: Very good

Microbotics' HardFrame/2000 is a half-length, four-layer card mounted on a lightweight aluminum chassis that supports the hard drive as well. Although the drive mounts to the rear, the 50-pin SCSI connector is located at the front of the board next to a 25-pin header for an external SCSI cable. The card includes a power connector for the hard drive. The rear mounting-bracket portion of the chassis does not have a cutout for a DB25 connector.

HardFrame also uses the DMA transfer method. Partitioning software is mouse-driven with on-line help. The HardFrame/2000's documentation, provided on floppy disk, is full of technical details as well as instructions on how to assemble your own 25-conductor cable if you should need one. ►



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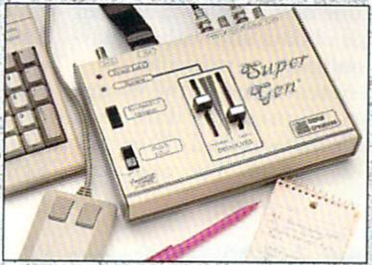


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THE RIGID DISK Block specification, or RDB, is Commodore's solution to hard-drive interchangeability. With RDBs, the hard drive's format specification, which includes the number, size, and type of partitions, is stored in a small area on the hard drive itself. The host adapter automatically examines the RDB and finds out all it needs to know about the drive. It should be possible to move a hard drive conforming to the RDB spec from one host adapter to another without loss of data and without having to reconfigure or reformat.

The old system relied on the storage of drive-configuration data in a mountlist file that was read off the boot partition on startup. The operating code for the host adapter was generally stored in a file on the hard drive as well. This system made it easy for the developer to update the driver code by simply sending out floppy disks, but tied a formatted hard drive to the original controller. By contrast, RDBs necessitate that the driver code be stored in a Read Only Memory (ROM) chip on the host adapter. This can make code revisions more difficult and more expensive.

RDBs are still a new concept on the Amiga, and I was not surprised to find that it is not universally embraced. Some host adapters put all or part of their driver code in the RDBs. The Trumpcard software handles foreign RDBs best; it simply senses the incompatible code and gives you the option of replacing it. Despite dire warnings to the contrary, the Trumpcard installation utility preserved the data on the hard drive.

In most cases, when I encountered difficulty, I was able to rewrite the RDB on the drive without losing data. I expect that RDB compatibility problems will disappear as the developers become accustomed to their protocols. Factory-fresh drives will not have this problem, and unless you need to move a drive between host adapters, you should not worry about RDB compatibility. If you do swap drives, you should back up the data and reformat the drive at the earliest opportunity. □

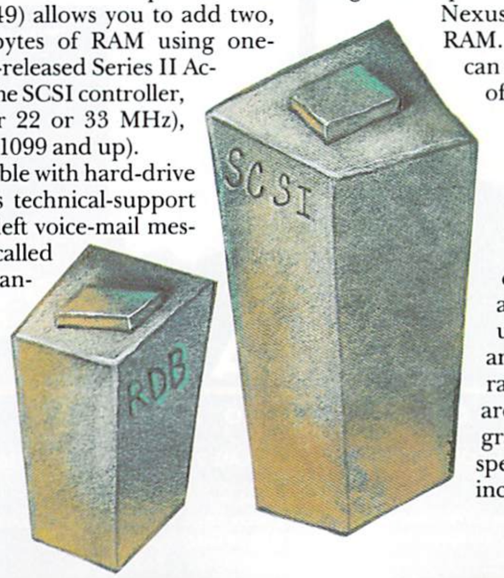
—MK

Impact A2000 HC Series II

Impact A2000 HC Series II
Great Valley Products
Price: $199
Warranty: One year
Performance: Excellent
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

GVP's Impact HC Series II is a basic, high-performance SCSI host adapter. This full-size, two-layer card provides a DB25 connector on the rear mounting bracket for connection to external SCSI devices. Because GVP's own large-scale integrated circuit encompasses most of the interface's circuitry, the number of on-board parts is minimal. GVP also offers this adapter in two other forms. The Impact A2000 HC+8 Series II card ($249) allows you to add two, four, six, or eight megabytes of RAM using one-megabyte SIMMs. The just-released Series II Accelerator System provides the SCSI controller, a 68030 accelerator (either 22 or 33 MHz), and up to 16MB of RAM ($1099 and up).

Upon encountering trouble with hard-drive formatting, I called GVP's technical-support line on two occasions and left voice-mail messages. Both times, GVP called back within an hour with answers to my questions.



Nexus

Nexus
Advanced Storage Systems
Price: $299
Warranty: Five years
Performance: Superior
Supporting Software: Very good
Documentation: Excellent
RDB: Yes
Overall: Excellent

The Nexus host adapter, from Advanced Storage Systems, is a full-size card. The four-layer circuit board is equipped with a metal shield behind the drive-mounting area, which also serves as the rear mounting bracket. A DB25 connector is provided for external SCSI devices. When configured as a hardcard, power for the drive is obtained from one of the Amiga's own power-supply connectors.

Nexus accepts up to eight megabytes of RAM. Using one-megabyte SIMMs, you can add either two or four megabytes of RAM; a pair of four-megabyte SIMMs are required to add eight megabytes. Note that the one- and four-megabyte SIMMs are mutually exclusive—you cannot mix the two on one card.

The Nexus package includes easy-to-use installation software and Flashback, a hard-drive backup utility that supports both file- and image-based backup and restoration. Also on the distribution disk are SpoolIt, a printer spooling program, and SmartCache, a hard-drive speed-up utility. Nexus comes with an incredible five-year warranty. ►

SupraDrive with WordSync

SupraDrive with WordSync
Supra
Price: $149.95
Warranty: One year (two years with Quantum drive attached)
Performance: Very good
Supporting Software: Very good
Documentation: Excellent
RDB: No
Overall: Very good

WordSync is a half-length card with mounting rails that support both the hard drive and the rear mounting bracket. An on-board, hard-drive power connector is provided. A DB25 connector on the rear mounting bracket, for external SCSI devices, connects to the main two-layer circuit board via a 25-pin flat-ribbon cable.

The SupraBoot disk is used to boot the system if you do not have Kickstart 1.3 or if you are setting up a new drive. SupraFormat, which you use to actually set up the drive, is a full-screen, icon-driven utility. It automatically identifies and selects the parameters for any SCSI controller and hard drive on your system.

Additional utilities are provided on the SupraTools disk. These include the SupraEdit program, which resembles the SupraFormat program and lets you access lower-level hard-drive parameters.

WordSync is based on the premise that two bytes are better than one; that is, that disk operations can be speeded up by transferring two bytes of data at a time. Its performance was comparable to the other systems under normal conditions, but it slowed a lot with CPU and DMA contention. Supra has promised the June release of updated drive software that is expected to include a 10–15% speed increase and support for the RDB mounting system.

Trumpcard Professional

Trumpcard Professional
Interactive Video Systems
Price: $279.95
Warranty: One year
Performance: Excellent
Supporting Software: Superior
Documentation: Excellent
RDB: Yes
Overall: Excellent

Trumpcard Professional is a half-length card with a matched pair of 50-pin SCSI connectors. Interactive Video Systems did not provide for a 25-pin SCSI port on Trumpcard Pro, as it found 25-pin cables to lack sufficient noise immunity at the highest transfer rates. Instead, the company provided a pair of 50-pin SCSI connectors. The card is designed to maximize the performance of video applications in a 68030-based Amiga with a high-capacity hard drive.

TCUtils 2.0, Trumpcard's installation and set-up software, is the best I have seen for overall flexibility and ease of the initial setup. Starting with a brand-new hard drive, if you choose to accept the default option of a single partition, TCUtils will handle the low-level formatting, AmigaDOS formatting, and installation of Workbench and AmigaDOS.

If you wish to partition the drive, TCUtils' click-and-drag graphical interface makes partition sizing as painless as possible. You can choose between the regular file system or the FFS for AmigaDOS partitions, or you can create partitions for use with ReadySoft's AMax II Macintosh emulator. If you think you know what you are doing, TCUtils will also let you specify every conceivable user-adjustable hard-drive parameter. The latest Trumpcard driver release supports Commodore's RDB system.

Trumpcard Professional supports full bus arbitration and multiple hosts on the SCSI bus, allowing SCSI networking. Jumpers on the board let you set the SCSI ID to any possible value.

Trumpcard

Trumpcard
Interactive Video Systems
Price: $169.95
Warranty: One year
Performance: Very good
Supporting Software: Superior
Documentation: Excellent
RDB: Yes
Overall: Excellent

The original Trumpcard, IVS's lower-cost SCSI host adapter, is a half-length card that you can convert to a hardcard with the included rail kit. The board has a single, 50-pin SCSI connector and a 25-pin header for an optional DB25 connector. Trumpcard lacks the Professional's ID-selection jumpers and the capability to run a SCSI network.

Although Trumpcard did not perform as well in the speed trials as its Pro counterpart, it does compare favorably with the smaller buffer size. It uses the same installation software as does Pro.

Malibu Board

Not wishing to be left out of the line-up, California Access provided us with a preliminary version of the company's Malibu Board. Due to ship by the time you read this, Malibu is slated to cost $229.95.

The sample board looked like a finished production unit, as it had no jumpers or other modifications. It was a full-length, two-layer card with a DB25 connector on the rear mounting bracket. California Access' Catalina Card ($99.95), a RAM expander, plugs into a socket on the Malibu Board. You can configure the Catalina Card with two, four, or eight megabytes of RAM using one-megabyte SIMMs.

I was impressed with the installation and set-up software. Although it lacked the ability to write the RDB in its preliminary state, California Access promises this feature in the finished version.

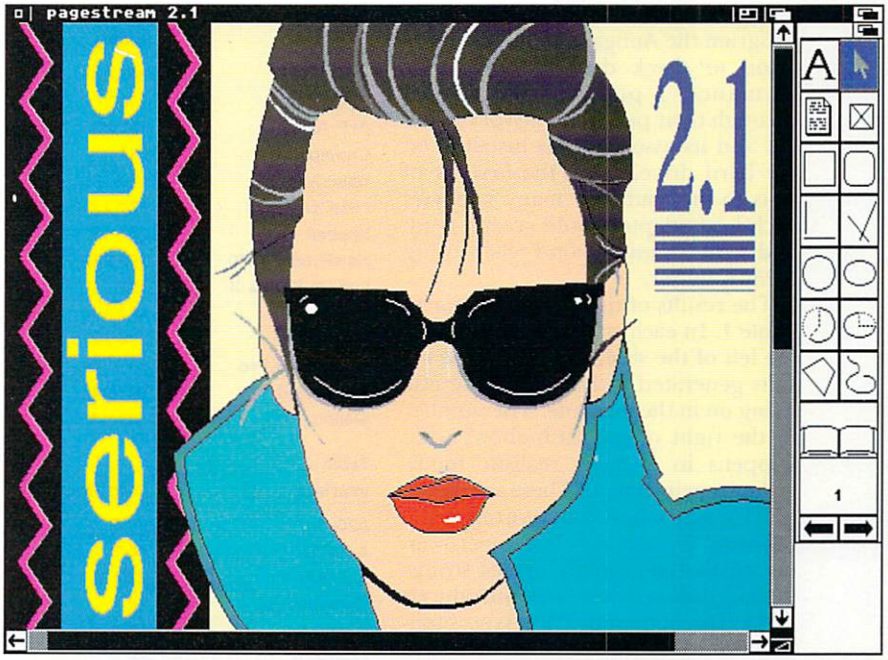
I was able to install a preformatted hard drive and run the complete series of tests on the Malibu Board. ►

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— Deron Kazmaier
Soft-Logik President



Actual PageStream 2.1 screenshot

ART IMPORT	ProPage	PageStream
IFF (24 bit)	Y	Y
TIFF	N	Y
GIF	N	Y
EPS	Y	Y
EPS – view TIFF preview	N	Y
ProDraw	Y	Y – *Editable!*
Aegis Draw	Y	Y – *Editable!*
GEM	N	Y – *Editable!*
IMG	N	Y
MacPaint	N	Y
TEXT IMPORT		
WordPerfect	Y	Y
Excellence!	N	Y
Scribble	Y	N
ProWrite	N	Y
ASCII text	Y	Y
COLOR		
CMYK	Y	Y
RGB	Y	Y
HLS	N	Y
HSV	N	Y
Pantone Colors	Y	N
UCR/GCR	Variable	Fixed

FONTS	ProPage	PageStream
PostScript Type 1	N	Y
PostScript Type 3	N	Y
Compugraphic	Y	Y
Outlines on Screen	Y	Y
# Outline Fonts Included	2	18
Typographic Precision	1 point	0.01 points
Max Font Size (any type)	720 points	183,000 points
INTERFACE		
Framed Text	Y	Y
"No Frames" Text	N	Y
# of Open Documents	1	Unlimited
Linked Text Processor	Y	N
Font Caching	Manual	Automatic
View Magnifications	7 fixed	User Scalable
Zoom View	N	15 – 1500%
Templates	Y	Y
Master Pages	N	Y
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Decisive Data: Speed Test Results

Using MKSoft's DiskSpeed 3.1, the program the Amiga community relies upon to check drive-interface performance, I put our 14 subjects through their paces. With Workbench 1.3 and its assorted files installed on the hard drive, I ran the first set of tests to find out how many kilobytes each host adapter could create, read, and write in one second when using a 256K buffer.

The results of these trials appear in Table 1. In each column, the figure to the left of the slash represents the results generated without anything else going on in the machine. The number to the right of the slash shows what happens in a more realistic multitasking environment. These are the results I got when I activated CPU (Central Processing Unit) stress—an option that repeatedly copies strings during disk activity—and introduced DMA (Direct Memory Access) contention, which simultaneously transfers information on the data bus.

Table 2 shows how many files the drive was able to create, open and close, scan, delete, and seek/read in one second when attached to each controller. As in Table 1, the initial figure listed for the interfaces in each category tells you the results without DMA and CPU contention. The second figure shows you what happens with these extra demands on the system.

Table 3 gives you the results of two "real-world" tests. The first column indicates how long each host adapter took to autoboot from a cold start with a generic Workbench 1.3 startup-sequence. The second column shows how long it took to build a new index on one field within a large database file using Superbase Professional 3.01 (Precision Software).

Table 1.

Interface	Create	Read	Write
A2091	247/204	406/392	609/498
AdSCSI	390/372	650/640	643/622
ALF AF	421/402	609/585	574/569
Comspec SA	131	169	221
DataFlyer	160/158	201/199	433/415
FastCard Plus	279/272	504/506	509/538
Fireball	241/107	361/167	557/243
HardFrame/1200	299/289	580/567	643/623
Impact Series II	297/143	583/275	575/279
Nexus	499/490	655/650	631/633
SupraDrive	278/82	534/148	677/177
Trumpcard Pro	304/294	600/597	620/614
Trumpcard	247/242	385/406	424/391
Malibu	309/236	577/385	569/388

Table 2.

Interface	Cold Boot	New Index
A2091	25.6	47.8
AdSCSI	44.1	23.4
ALF AF	22.4	50.1
Comspec SA	24.7	37.5
DataFlyer	22.7	41.4
FastCard	32.9	37.4
Fireball	26.8	41.1
HardFrame	24.5	39.7
Impact Series II	24.6	34.9
Nexus	38.1	41.2
SupraDrive	47.6	37.6
Trump Pro	26.7	39.1
Trumpcard	28.1	40.1
Malibu	26.0	32.6

Table 3.

Interface	Create	Open/Close	Dir Scan	Delete	Seek/Read
A2091	7/4	18/11	70/40	25/16	197/128
AdSCSI 2000	49/38	149/107	66/51	195/130	29/23
ALF	9/9	19/16	101/78	63/52	185/122
Comspec SA	9	26	85	14	23
DataFlyer	9/8	24/20	149/104	31/27	204/130
FastCard	11/10	26/20	134/98	15/13	23/29
Fireball	11/7	24/14	97/48	15/10	196/78
HardFrame	11/9	26/19	181/108	53/35	201/131
Impact II	11/6	35/16	106/43	31/20	198/78
Nexus	12/10	19/17	116/83	61/46	186/122
SupraDrive	10/2	28/6	149/14	31/4	200/130
Trump Pro	10/9	41/29	145/95	19/15	197/127
Trumpcard	11/10	26/21	109/75	14/12	194/126
Malibu	12/10	39/28	158/93	17/14	200/131

For a preliminary product, the board gave a pretty impressive performance.

But Wait! There's More!

There are a few more A2000 hard-disk controllers, not yet out of the gate. In addition to the Malibu Board, you can look forward to **Flash!** from M.A.S.T., which will allow you to add up to eight megabytes of memory. IVS's **Grand Slam** is essentially a Trumpcard Professional with an on-board parallel port and sockets for eight megabytes of SIMM-based RAM. Watch for reports on these boards in the Reviews section of upcoming issues. ■

Morton Kevelson holds a day job as an electrical engineer. He has vast computer experience and writes regularly for a number of Amiga publications. Write to him c/o Amiga-World *Editorial, 80 Elm St., Peterborough, NH 03458.*

Making a RUN For the Roses

With a bigger, faster, and more powerful stable of BASICs for the Amiga, the common man's programming language is no longer an also-ran in the "Developers' Derby."

By Mark Jordan

If you were to consider development tools for the Amiga in terms of a horse race, the BASIC stable of years past would have been a sure bet to finish dead last in a contest with the rest of the competition. Today's higher-level languages (C, Modula-2, Forth, and the like) and even the powerful but easy-to-use new authoring systems (CanDo, AmigaVision, and others) would easily have run rings around not only the early "street BASICs" but also the later Microsoft implementation, Amiga Basic.



While still scorned by many professionals and spurned by numerous hackers, BASIC (Beginner's All-purpose Symbolic Instruction Code) has not merely survived into the 1990s—it flourishes! And well it should. It always has been an easy language to speak; these days it's a powerful one as well. Today's BASIC really has it all: word-processor-like editing, structured programming, cross-computer compatibility, and speed. People who turn their noses up at BASIC in 1991 are looking a gift horse in the mouth and missing the chance to talk to their computer in a truly expressive language.

The question, however, is which one in this sleek new crop of BASICs is best? Or, more precisely, which is best for you? Think of this article as a handicapper's guide in which we'll dope out the contenders and see which ones are worth a wager. It's a strong stable—with six independent starters (True BASIC, HiSoft BASIC Professional, F-Basic 3.0, GFA BASIC 3.5, Blitz Basic, and AMOS) plus a compiler/enhancer for Amiga Basic (AC/Basic) and a near-BASIC alternative (Amiga COMAL).

Obviously, eight serious software packages cannot be covered comprehensively in a single article. To streamline things, we'll look at these eight programs in three distinct ways: through my subjective evaluation in the text, a fairly comprehensive feature-comparison chart, and the results of benchmark speed tests. Used together, these three components should help you get an overview of what our BASIC racing stable has to offer. (As a point of reference, all three approaches include comparisons with the Amiga Basic currently implemented on Workbench 1.3.)

Furthering the racing analogy, it happens that our eight hopefuls shake down nicely into four distinct two-horse "entries." By looking at them in this comparative fashion, it will be easier to assess the strengths ►

ILLUSTRATED BY BILL PURDOM

and weaknesses of each. Those are the ground rules, so let's begin by taking a canter through the halls of ivy where BASIC got its start *and* its second wind. *(For details on how to contact the developers of products covered in this article, consult the "Manufacturers'/Distributors' Addresses" list on p. 96.)*

It's Academic: True BASIC And COMAL

BACK IN THE early days of BASIC, things weren't as good as they are today. There were no compilers, no long variable names (only a two-character max), and no loops other than FOR/NEXT. This was the era of "street BASIC"—with its ubiquitous GOTO and its ugly variations of "spaghetti-code" (so named because of the language's almost totally unstructured nature, which generally resulted in programs whose logic was nearly unfathomable—akin to a heaping plate of long, stringy spaghetti noodles all tangled up and sloshed together). Making matters even worse, programs written using street BASIC were hardware-dependent, running only on the computer system on which they were written.

Three college professors, one in Denmark and two in America, decided to do something about it. In the early 1970s, Danish professor Borge Christensen was the first to take on restructuring BASIC when, with the help of a couple of extremely bright students, he produced one of the more enduring alternatives to BASIC, COMAL (COMmon Algorithmic Language), now available to Amiga users as **Amiga COMAL** ($99.95, including compiler, COMAL Users' Group).

Meanwhile, Dartmouth professors John Kemeny and Thomas Kurtz, the inventors of BASIC, set out to "replace the obsolete and often ugly implementation of BASIC with a well-designed, modern version [which is] portable, or hardware independent." (This is from the preface to the True BASIC manual.) The result of their work was **True BASIC** ($99.95, True BASIC, Inc.), a structured dialect of BASIC that works on several different computer systems.

Both succeed in their goals of creating a fairly portable, very structured language. COMAL programs written for the Amiga transfer to other COMALs without much effort, as do True BASIC programs within the True BASIC family. COMAL offers more than 50 control commands to help structure programs (and thus put an end to spaghetti-code), including FOR, PROC, EXEC, DO, REPEAT, and WHILE, plus decision-makers such as CASE, ELIF, ELSE, ENDIF, ENDWHILE, EXIT, OTHERWISE, THEN, UNTIL, WAIT, WHEN, WHILE, and IF.

True BASIC does not provide quite as many choices, but the 28 it does are enough to give any program listing a great deal of clarity. Both have lots of options for creating sequential and random files, including such novel commands as COMAL's RECORD, which allows you to deal with a whole set of fields (record items) in one gulp, and True BASIC's matrix (MAT) commands, which let you read whole arrays from disk with just one statement. (MAT commands do lots of other things, too, such as fill, copy, print, input, and compute arrays with a single statement.)

Both languages also have easy-to-use drawing commands: COMAL offers three graphics packages (including a form of "turtle graphics" borrowed from Logo), while True BASIC provides a screen-coordinates mode that makes creating charts and graphs a breeze. Both languages are easy to learn, too. True BASIC wins points for its two clearly written manuals (one user, one reference), and COMAL scores with its easy-to-use editor. And both create stand-alone programs that will run on the Amiga without any host programs.

That said, I must report that I have some problems with the underlying philosophy of these two languages. The trouble with portability is that it makes expression of the personal character of the computer difficult. In effect, we Amigans have been lowered to the music and graphics level of IBM PCs and other machines. The trouble with structure is that all other BASICs have it as well these days. It's no longer a selling point. Selling points for Amiga languages today are ease of use, graphics and music power, and blinding speed, whereas COMOL and True BASIC offer only ease of use.

Also, the trouble with languages developed by professors is that form becomes more important than function. For instance, True BASIC demands that you set all variables with LET, and COMAL does not let you use the value of the variable in a FOR/NEXT loop unless you equate it with another variable. It's like English teachers who demand an outline for every written assignment—even poetry!

If Amiga Basic (which comes as part of all pre-2.0 releases of Workbench) were the only alternative, I would jump on one of these two. Amiga Basic, however, is *not* the only alternative, and that is why I can't really recommend either one.

Language Enhancers: AC/Basic And HiSoft BASIC

ALTHOUGH SOME MAY disagree, Amiga Basic has been roundly hated by most users ever since it was released. A sluggish editor with even more sluggish menus and requesters, it produces sluggish programs. And those are its good points. Okay, maybe it isn't *that* bad: Amiga Basic does have modern commands, including over 20 object commands, word processor-like editing, and. . .well, I'm sure there are some other good things. At least it is better than its predecessor, ABASIC (the BASIC from Metacomco included with the early 1.1 release of Workbench).

Sluggishness is hardly one of the hallmarks of a top-class racehorse. If only one could speed up Amiga Basic, all would not be lost. In fact, one *can* do it, and in two ways, which is why these two adaptations, ►

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Comparison of Key Features in Eight Amiga BASICs[1]

	AMOS	HiSoft	GFA	F-BASIC	Blitz	TrueBASIC	A/C Basic	COMAL
EDITING								
Insert/Overstrike	•		•	•	•	•		•
Cut/Paste	•	•	•	•	•	•	•	
Search/Replace	•	•	•	•	•	•	•	•
Auto Line Formatting (cap, indent, spacing)	•	~	•				~	•
Folds (hides) Procedures/Subroutines	•		•					
Allows Multiple Commands per Line	•	•		•	•		•	
Pointer/Cursor On/Off Toggle (p - c)	• •	• (c)		• (c)	• •	• (c)		
Trace Feature	•	•	•	~			•	•
Undo	•	•	•	•		•		
Keystroke History (remembers typing)	•		•					~
Save Place (bookmark)	•		•					
Optional Line Numbering (m=mandatory)	•	•				•	•	• (m)
FILE HANDLING								
ASCII File Loads/Saves	•	•	•	•	•	•	•	•
Merge Capability	•	•	•			•	•	
Access to File Requester Within Programs	•	~		~		•		
DOCUMENTATION								
Number of Pages in Manual	293	358	419	223	134	600+	337	159
Example Programs on Disk	•	•	~	•	•	•	•	•
Help on Disk	•	~				•		
Index	•	•	~	•		•	•	
COMMANDS (Incl. Statements & Functions)[2]								
Total Number of Commands	500+	219	344	280	132	225	199	177
Number of Menu Commands	45	2	7	9	0	5	5	0
Number of Objects Commands	31	23	21	5	15	0	23	0
Number of Strings Commands	14	21	24	26	15	14	24	12
Number of Control Structures	24	29	24	16	19	28	29	49
Number of Disk Access Commands	31	21	34	19	10	29	16	29
Number of Music/Sound Commands	24	5	2	9	9	2	5	0
Number of Graphics Commands	23	13	25	29	27	32	15	30+
Joystick Functions	•				•		•	
One-Step Math Commands (inc, dec, mult, div)	•	•	•	•		~		•
GENERAL FEATURES								
Local /Global Variables	•	•	•	•		•	• •	
Maximum String Length	65K	16 Meg	32K	User Set	User Set	1 Meg	32K	32K
Compiled/Interpreted/Both (c - i)	• (i)	• •	• •	• (c)	• (c)	• (c)	• •	• •
Compatibility with Other Computers	~	•	~			•	~	•
Multiple Files in Memory	•							
Multitasking with Workbench	•	•	•	•	•	•	•	•
Access to Amiga System Routines	•	•	•	•		•	•	•
Creates Stand-alone Application		•	•	•	•	•	•	•
EASY GRAPHICS/MUSIC FEATURES[3]								
Loads IFF Screens	•			•	•			
Overscan Capabilities	•							
Power Screens (HAM, Half-Brite)	•		•		•			
Fluid Bobs/Sprites Movement	•				•			
Font Usage	•				•			
Pixel Screen Scrolling	•				•			
Double Buffering	•				•			
Facilitates Amiga Narrator	•	•	•	•		~	•	
Plays Music Files	•			•	•			

Single bullet (•) means item is implemented; double bullets (• •) mean both items are implemented (where applicable); tildes (~) mean item is *somewhat* implemented.

[1] Some programs might have features not credited here because the feature is undocumented (or extremely hard to find).

[2] The number of commands counted above is meant merely as a guideline in assessing each BASIC's capability. Some adaptations may have fewer commands but more power. Also, the method of counting such commands represents an attempt to include all commands that were at least somewhat related to each particular category. For instance, disk-access commands include file commands such as OPEN, loading commands such as BLOAD, and directory commands such as DIR.

[3] "Easy" here means that a BASIC command rather than a library routine is available to do the chore.

AC/Basic 1.3 ($195, Absoft) and **HiSoft BASIC Professional** ($159.95, HiSoft/Gold Leaf Publishing), are included here. First, let's take a look at the elder statesman of the two: AC/Basic.

AC/Basic isn't really a language; it's a language enhancer for Amiga Basic. Although it does add a few commands to the roster (SELECT/CASE structures and static/dynamic array compiler options are the most powerful), the reason for buying AC has nothing to do with improving the host language. It has everything to do with speed.

To give you some idea of how slow interpreted Amiga Basic is, in the nine benchmark tests against seven competitors, its record was seven "wins" and 56 "losses." (A "win" is assigned for each competitor it outfinished in each of the benchmark tests.) And when Amiga Basic loses, it loses badly: It takes 73 seconds to run the Stringmix benchmark—fully 58 seconds (400 percent) slower than the next slowest. Using AC/Basic, things improve quite dramatically for Amiga Basic: Once compiled, its win tally rises to 27. That's still 36 times that other BASICs beat it, but if you take a close look at the results, you will find that AC is very close in all categories of operation.

Using AC is straightforward: You boot it up, open up the saved Amiga Basic file you want to compile, click COMPILE, and watch the results. Compiling a 22K program takes just 37 seconds. Usually, that one click is all it takes, although with use, programmers will want to experiment with the 11 click-on compiling options. Occasionally, the compiler reports an error in a program that runs from the interpreter, but I found such instances infrequent and easy to correct. Once compiled, the program is now icon-clickable and needs only an Amiga to run on.

HiSoft also compiles Amiga Basic programs and produces stand-alone programs, but that's just the beginning of its attributes. It is a complete language-development system. HiSoft has more commands than Amiga Basic, and they are better integrated into the compiler. It is fairly compatible with Microsoft's Quick Basic, giving it the advantage of porting over easily to MS-DOS and Macintosh computers. It also has the advantage of being able to compile from the editor, thereby saving the programmer a lot of time and hassle.

The only thing requiring special attention is that when compiling Amiga Basic files, HiSoft works only with ASCII files. That means you will probably have to go back into Amiga Basic and resave old programs (use the comma-A suffix) if you want to compile them with HiSoft.

Using HiSoft's editor is clearly superior to working within the Amiga Basic environment. My only objections to it are that it requires precise spacing within commands (for example, FORT=1TO10—instead of the correct FOR T=1 TO 10—would result in a syntax error) and end-quotes on strings.

A file requester that lets you open and close files is very nicely designed and very fast. (Amiga Basic has no file requester; you must always remember your filepaths, and that's no fun.) One feature of the requester I really appreciate is that it immediately switches directories or paths if you type or click a change, thus saving you the agony of waiting for the whole directory to read into memory each time.

The HiSoft manual does not quite match the AC manual (which is superb), but it does have a feature all programming-language manuals should have: spiral binding. It also provides an alphabetical list of commands—another must-have feature that all too many manuals lack. ►

Benchmarks

	AMOS	HiSoft	GFA[1]	F-BASIC	Blitz	True BASIC	A/C Basic[2] (Intp) Com	COMAL
1. Filewrite	61	87.5	33.08	30	42	171.2	(56) 56	66.5
2. Fileread	40	40.9	22.6	49	33.8	75.4	(51) 25.4	118.6
3. Math	4.28	3.65	5.4	1.7	8.0	5.72	(16) 5.75	7.46
4. Sieve	19.67	10.89	10.5	.52	.51	9.08	(64) 14.4	15.8
5. Drawline	11.5	27.66	14.35	15.19	21	106	(39) 12.8	31.16
6. Stringmix	12.43	10.71	10.9	2.77	7	14.52	(73) 23.8	14.68
7. Print1 (with scrolling)	36.89	86.06	37.74	40	58	58.42	(191) 84	55.28
8. Print2 (without scrolling)	8.41	12.92	16.83	19	27	28.82	(58) 10.6	5.16
9. Count	3.51	8.81	6.3	.29	3.82	16.92	(35) 13.1	9.93
Total "wins" (63 possibilites)	41	27	43	48	34	13	27	19

Remarks:

Filewrite wrote "Hello World." to disk 10,000 times to create a 130,000-byte file.

Fileread read back the "Hello World." file that Filewrite created.

Math measures 5000 iterations of the standard math operators.

Sieve is a *Byte* magazine benchmark that calculates the time required to find all primes from 0 to 7000.

Drawline drew a line from 0,0 to 639,199 on a hi-res screen 1000 times.

Stringmix used string-sorting commands to rearrange the contents of three strings xx characters in length.

Print1 printed the message "Hello World." 1000 times, allowing the screen to scroll.

Print2 printed the message "Hello World." 1000 times, using cursor-placement commands to place the message at 10,10.

Count is a simple FOR/NEXT loop that counts from 1 to 100,000.

[1] Benchmark tests were made on GFA as an interpreted language only because I found version 3.5's recently added compiler buggy.

[2] Interpreted (Intp) means Amiga Basic. Compiled (Com) results reflect the enhancement A/C Basic produces.

The only real drawback to both these programs (and you're going to get tired of me beating this drum) is that they don't really dig deep into the Amiga and give us easy access to its sound and graphics capabilities. But for programmers who have some old Amiga Basic programs they wish to speed up, or who need to create some productivity software, HiSoft is an excellent choice. And if those same programmers happen to use a Macintosh or IBM at work (as I do), it makes even more sense.

Racehorses: F-Basic and GFA BASIC

IN PRODUCING THE benchmark tests for this article, it soon became apparent that two products were real thoroughbreds: **F-Basic 3.0** ($99.95, $159.95 with Source Level Debugger, Delphi Noetic Systems) and **GFA BASIC 3.5** ($99.95, GFA Software Technologies). F-Basic beat the field in 48 out of 63 chances; GFA was close behind with 43 wins. F-Basic's margin of victory was often way ahead of the pack. In the Counting test, for example, F-Basic was 12 times faster than its nearest competitor. Obviously, if execution speed were the only criterion, F-Basic would be the BASIC adaptation of choice.

As in horse racing, however, pure speed is not the only quality that wins the race. One evening with F-Basic will convince you of that. F-Basic has racehorse breeding, all right. The trouble is that it demonstrates traits from the jackass gene pool, as well. To wit:

- It runs from the CLI.
- It is edited from within an awkward text editor that gives the word "picky" new meaning. (You'd better oil up your caps-lock key because with F-Basic you're going to need it.)
- It breaks every convention known to BASIC. For example, it uses question marks instead of apostrophes as REMs (remarks).
- It has a *steep* learning curve. (It took me over two hours to get just one 10-line program typed in and running.)
- It takes forever to test and debug programs: The drive churns, the program works, more churning, more working, and then—Error in line. . .
- The manual is nearly inscrutable.

But don't cross F-Basic off your list just yet. Remember that speed? Add to it power (a little workhorse breeding as well). F-Basic can load IFF files (both music and graphics), perform animations, do powerful pattern matching for strings, and make use of a built-in matrix package. And it does all of these very fast.

Delphi Noetic is working on version 4.0 (due out this fall). Maybe that incarnation will cross this powerful compiled language with a gentle mare of an editor to produce the ideal steed: a thoroughbred that real people can jockey. Until then, only advanced BASIC programmers should consider F-Basic.

GFA BASIC, on the other hand, is gentle enough for beginners to ride, powerful enough to plow a lot of acres, and fast enough to push F-Basic. Its gentle nature comes from an option-laden editing environment. It gets its strength from the 340+ commands in its vocabulary. And the speed is a result of excellent programming. Version 3.5 also adds a compiler.

The makers of GFA BASIC went out of their way to present an editor with options galore. Auto-indent and bookmarks (you can mark and return to as many as eight places within your file) make it a snap to edit. A hidden procedures option will collapse all subroutines so that just their labels show (similar to an outline processor), which is an excellent idea. Three windows are effectively utilized to allow for program listing, output, and direct mode.

All of the generally accepted commands of modern structured BASICs are found in GFA. It has several machine-language-like manipulations, including INC and DEC, and a group of one-step arithmetic commands that can really speed things up (ADD, SUB, MUL, and DIV). Creating menus with GFA BASIC is much easier than with F-Basic. The MENU ( ) function, for instance, will return just about any menu information you desire—from whether or not the size gadget has been pressed, to whether or not a disk is presently in the drive, and everything in between.

Unfortunately, it takes a little bit of study to figure out exactly how to do all this. The issue is greatly complicated by the fact that this function returns unwieldy numbers like 419403. Think you'll remember that one without referring to the manual? This same trait shows up in the screens and windows arena.

Like all the BASICs reviewed so far, GFA BASIC does not give easy access to the Amiga's special graphics modes, sprites, bobs, and music. The operative word here is "easy" because, again like all the others, the inquisitive programmer *can* delve into library routines, C structures, and the like. I'm glad the capability is there, but remember, the first letter of BASIC stands for "Beginner."

All things considered, GFA BASIC is an excellent choice for creating powerful nonentertainment Amiga software. F-Basic may actually do an even better job. . .if you have the patience (and courage) to learn how to ride that animal.

Graphics Glory: Blitz Basic And AMOS

OUR LAST PAIR of BASIC dialects, **Blitz Basic** ($99, M.A.S.T.) and **AMOS** ($99.95, Mandarin / American Software Distributors) offer something none of the others do: easy and powerful graphics. Real easy. Real powerful. They both are so good at sprites and bobs, as well as split screens and double buffering, that it is absolutely no exaggeration to say they are capable of producing commercial-quality games. The sample programs that come with each prove that. ►



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They also let you get at the musical power of your Amiga. In fact, AMOS and Blitz have a lot in common, and both have simple commands that allow you to:

- fade in and out
- access fonts
- horizontally scroll screen "slices"
- do double-buffering
- use the vertical blank for interrupt routines
- easily use all the Amiga display modes: HAM, Extra Halfbrite, dual playfields
- play background songs from an IFF song file
- move sprites and bobs (called "blits" in Blitz Basic) smoothly and rapidly around the screen

In addition, with Blitz Basic you can:

- grab any IFF brush and use it as a bob
- enable a genlock device
- slide notes up or down
- warble a musical note (VIBRATO is the name of the command)

AMOS has even more options (it ought to, considering its mammoth command vocabulary of more than 500 commands), some of which allow you to:

- create overscan, oversized, offset screens
- easily create up to 64 sprites at once (they're called computed sprites)
- produce stunning rainbow effects
- do all your sprite/bob moves during interrupts using AMAL, an entire interrupt-driven command sublanguage
- create windows in dozens of ways
- play sampled sounds easily as well as do simple and complex sound effects

To give you an idea how easily these effects can be implemented with AMOS, consider that you can cause a screen to fade out by merely entering: FADE 15.This simple command takes the current color palette and slowly (15 interrupts in this case) dissolves it to all zeros (black). By adding a few parameters, you can dissolve from the palette of one screen to that of another.

It should be apparent that these two programs are great at special effects. But how about "serious" (i.e., productivity or nonvideo) software? For Blitz Basic, the answer is no. Don't take my word for it, take M.A.S.T.'s: "[Blitz] is not recommended for people wanting to write *applications* software," says page 2 of the manual (italics mine). For those tasks, again from the manual, "Amiga Basic would be a far better choice than Blitz Basic." What? Amiga Basic?

AMOS is another story. It has all the commands necessary to qualify it as a serious development tool. Although this language was derived from an Atari ST version called "STOS: The Game Creator." French programmer, Francois Lionet, put so much more power into AMOS that the publishers decided to drop the word "game" from the title so as not to limit anyone's concept of what AMOS can do. Smart decision. AMOS's menu commands are the best and the easiest to implement of any of these dialects, and it has 45 of them, compared with nine for the next highest competitor.

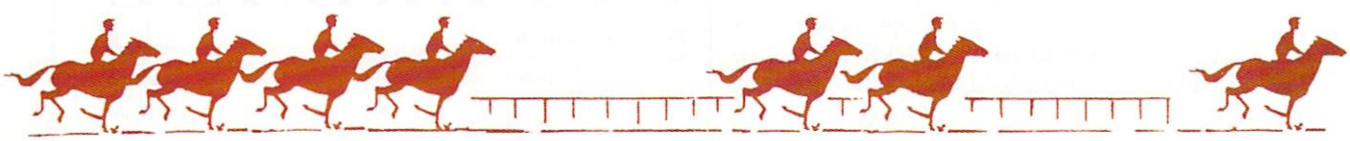
All the commands for modern structured programming are implemented in AMOS, including collapsible procedures, powerful control structures, and many interrupt-driven events. It competes well in string handling, arrays, math, and disk access (with an excellent file requester that you can use in your programs), as well as in overall speed. The speed comparisons are surprising, because AMOS is not a *compiled* language—although a compiler that should make it even faster is in the works. This should also solve the present run-time problem from which AMOS suffers. At present, you must include a special run-time software module (available from Mandarin for a nominal fee) if you want Amiga users who do not own AMOS to be able to run your programs. This module is basically the AMOS language without the editor.

Both Blitz and AMOS are fairly easy dialects to pick up. They come with colorful, lively documentation that is sometimes a bit lean on information (especially considering that they offer so many new commands), but is easy to read. The editing environment of each is equally friendly, with both programs sporting colorful screens and novel editing maneuvers. AMOS is the superior editor—it has so many ingenious editing tricks that one could write an entire article on that topic alone.

These two programs have broken new ground for BASIC programmers of the Amiga. Blitz can create great games; AMOS can create just about anything. They are not perfect (Blitz crashes frequently if you're not careful, and AMOS lacks a CONT [continue] command, of all things), but they have opened a door for Amiga programmers that all the other dialects will eventually have to walk through.

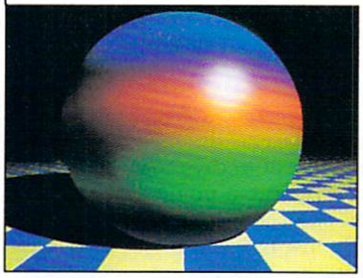
How do the members of the BASIC stable shape up now? We've walked through the barns, examined their conformation, and seen how fast they can RUN. As for which one is best for you, by now you have discovered that a lot depends on what *your* programming needs are. My top three choices are AMOS, GFA BASIC, and HiSoft BASIC Professional (in that order) because they fulfill *my* programming needs better than the others, and they do it in a friendly way. Your needs may be different, but no matter what they are, today it can be said with certainty that BASIC can meet them. BASIC may not *win* the Derby, but it's definitely going to finish in the money. ■

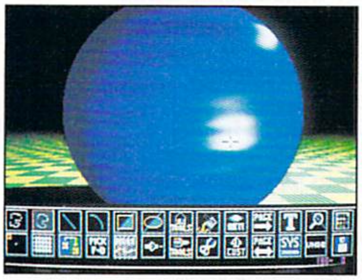
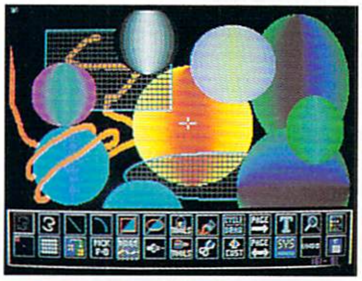
Mark Jordan is a high school English teacher and freelance computer writer. Address him c/o AmigaWorld, *80 Elm St., Peterborough, NH 03458.*



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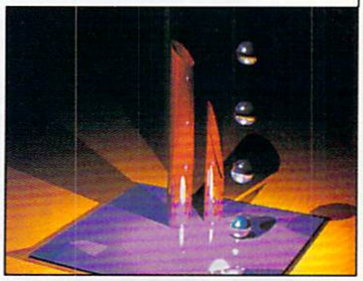
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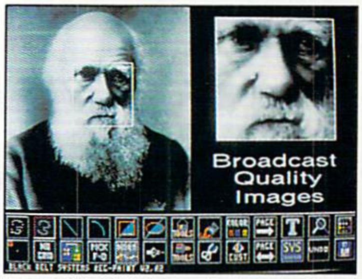
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Follow the Bouncing Ball

#29

A continuing series of tips, techniques, and tricks for creating more imaginative Amiga graphics.

By Joel Hagen

Maybe because it was the July issue, Joel might have been thinking of blue skies, sunny shores, Fourth of July cookouts, and other simple summertime diversions. Maybe he even picked up a beachball, tossed it in the air, watched it bounce playfully a few times, and suddenly it came to him. . .

. . .ALL YOU HAVE to do is press a key on your Amiga and a ball on the monitor bounces toward you, then rebounds off the screen. It's as simple as that! And creating this sequence will not only be a good introduction to the use of DeluxePaint III's (Electronic Arts) Move requester, but it will also provide a great way to show off the Amiga's (and your own) animation capabilities. Once you have gone through the sequence a few times in private, you can create the finished animation before an audience in less than five minutes.

To follow my example, work in any resolution and create a palette with a spread of three or four blues from light to dark. Make a light-brown background color and a darker brown for the ball's shadow. Set one of the palette Ranges to the spread of blues so that you can use them to make a contour gradient-filled ball with the Filled-Circle tool.

Pick up the ball as a brush and clear the screen to light brown. From the Anim menu, select Frames/Set # and enter 10. This creates 10 blank frames of the background color. Using the 1 and 2 keys, try rolling forward and backward through the frames. The frame number is displayed in the left corner of the menu bar. Go to frame 1 and stamp the ball down near the top of the screen.

From the Anim menu, select Move, which brings up DPaint's Move requester—a powerful animation program in its own right. By entering numbers to represent distances and angles, you can control automatically the movement of a brush across a series of frames. Horizontal movement is referred to as distance on the X-axis, vertical movement as distance on the Y-axis, and apparent movement into perspective space as distance on the Z-axis.For the ball to drop from the top of the screen to a point close to the bottom, enter a distance for Y of about 160 in low resolution or 320 in high resolution.

Click on Preview to test the results of your settings. You should see the ball or a box representing the ball drop frame by frame to a point near the bottom of the screen. The first (left-most) of the three ball-drop paths in the central part of the accompanying illustration is a representation of this path. If your ball goes up instead of down, change the distance to a negative rather than a positive number. Whether down is a positive or negative Y value depends on your "Original" setting in Prefs.

If everything appears satisfactory, click on Draw. When all frames are rendered, exit the Move requester and press the 6 key to play the animation in "ping-pong" mode, back and forth. Adjust the speed with the Cursor Left and Cursor Right keys. To stop the animation, press the space bar.

You will notice in the animation that there is no feeling that the ball is obeying the laws of physics. It simply oscillates up and down, instead of accelerating toward the ground. To solve this problem, clear all frames, stamp the ball again on frame 1, and return to the Move requester. This time, enter a number in the Ease Out box equal to the number of frames. Preview your results again and then click on Draw to render the new animation. Now the ball path is like the second (middle) representation in the illustration. Play it again in ping-pong mode with the 6 key.

ANYONE FOR SQUASH?

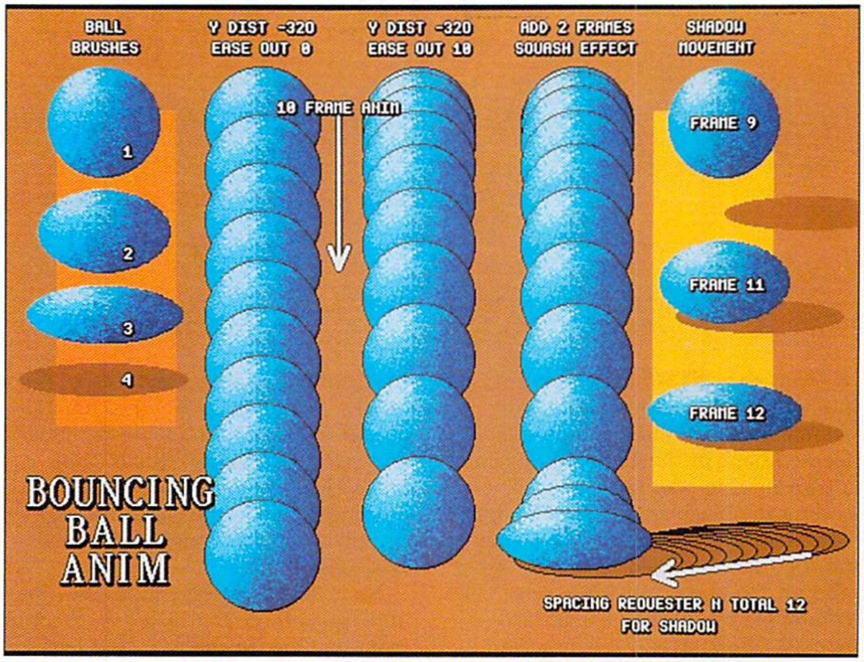
To make the animation even more effective, you can create the illusion that the ball "squashes" before rebounding from the ground. Go to the

Using DeluxePaint's Move requester and a few tricks, you can add a little 'bounce' to a nifty animation demo.

last frame and select Frames/Add Frame from the Anim menu. Doing this creates a duplicate of frame 10 as frame 11. Use the same tool again to create frame 12. Go to frame 11 and use the Brush tool to remove the ball from the background. Press SHIFT-Z to stretch the brush with the mouse. Squash the ball a little, roll back to frame 10, and register the bottom of the ball to the bottom of frame 10's ball. Now roll forward again and stamp the ball on frame 11. Do the same on frame 12 with slightly more "squash." The sequence now resembles the third (right-most) ball path in the illustration.

Use the Ellipse tool with the darker brown color to create a cast shadow as shown in the illustration. From the Effects menu, use Make Stencil to lock all colors except the light-brown background color. Pick up the shadow as a brush and select the Straight-Line tool with the right mouse button to bring up the Spacing requester. Select N Total and set the number to 12, the number of frames.

With a little dexterity at the keyboard, you can lay the shadow into each frame. First, while holding down the left Amiga key (DPaint's Animpainting key), roll to the last frame. Still holding down the key, place the shadow off to the right of the ball and depress the left mouse button. Drag the shadow under the ball as shown on the right side of the illustration. The stencil keeps the shadow behind the ball. Without releasing either the key or the button, roll ahead to frame 1 of the animation. Now release the mouse button while keeping the Animpainting key depressed. The shadow will advance toward the ball through the 12 frames. You could have used the Move requester to do this, but it is good to learn these manual tricks.



The "BallPage" illustration above shows the various ball and shadow brushes and the several movement paths for ball drops and shadows described in the article.

To make the ball bounce in from the distance, select animbrush/Pick Up from the Anim menu. Drag a box around the area of the screen that will be occupied by the ball and shadow during the 12 frames and pick up that animbrush. From animbrush/Settings, select <->, the ping-pong icon. Now delete the entire animation, clear the screen, and, after selecting Frames/Set #, enter 60 for a longer animation in which the ball will bounce several times.

Roll to frame 60, stamp the animbrush near the left of the screen, and click on Undo. The computer will remember this location. In the Move requester, set Ease Out to zero, set the Z distance to -1500, and experiment with X and Y distances. Select the Target icon that has the arrow pointing toward the target dot. This moves the ball toward the position you set on the last frame. Again, click on Preview and then Draw. Play with the 6 key to see the ball bounce in from the distance and then rebound from the screen as it ping-pongs back. These basic techniques should equip you to try a multitude of experiments. ■

Joel Hagen's credits include work in art, astronomy, science fiction, and software development. Write to him at 10512 Sawyer, Oakdale, CA 95361. Please include a stamped, self-addressed envelope for a reply.

VIDEO  SUITE

The Top Ten

To ensure we're all speaking the same language, our first column defines some common terms.

By Joel Tessler

1. What does NTSC mean? NTSC stands for the National Television Standards Committee, which was formed back in the 1950s to develop a transmitting standard for color-encoding the black-and-white TV signal. The standard had to work not only on the then-new color TV sets, but also on the black-and-white sets. The committee established a standard named RS-170A, but it is now commonly referred to by the abbreviation of the committee's name.

2. What is RS-170A? The RS-170A standard details the video signal's timing parameters—burst amplitude, breezeway duration, set-up level, vertical scanning frequency, and more. For a more technical discussion, see "The NTSC/RS-170A Standard," p. 30, *The AmigaWorld Tech Journal*, June/July '91.

3. Why do my video graphics shake? An NTSC color television picture is actually composed of 250–325 horizontal scan lines that lie close enough together to create a picture. The picture information enters the screen from the top left corner and "prints" all of the odd-numbered scan lines (1,3,5,7, and so on). When it reaches the bottom of the screen, the picture information for the even-numbered lines appears, again going from top to bottom and left to right. This process (the display of odd and even lines) happens 60 times per second and is known as interlacing.

To illustrate how interlacing can make your image twitter, let's create a "shaky" situation in DeluxePaint III (Electronic Arts). Enter hi-res mode and select the Rubber Band Tool. Next, click the left mouse button and, holding it down, drag it to the right until you have a straight, four-inch horizontal line.

Now, take a close look at your line and you will see that it seems to jump from one line to the next and back. Copy the line and stamp it down directly above the original one, making sure that there is no space between the two. The resulting line, which is twice as thick as the original, is not shaking as much. Add one more line; the shaking almost disappears. It seems that anything less than two scan lines wide shakes badly in NTSC. When you prepare graphics for use in video, make sure that horizontal lines are at least two or three scan lines thick.

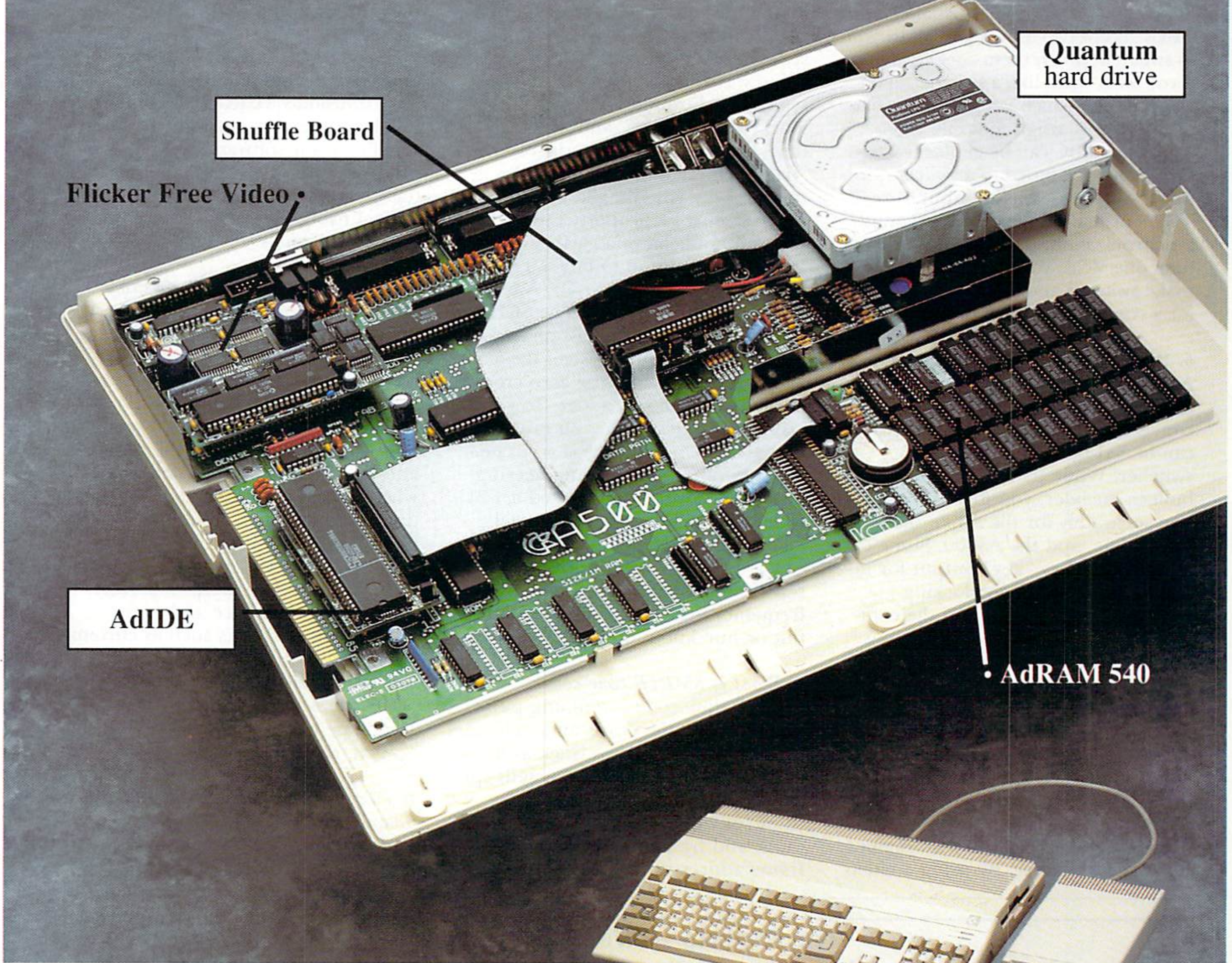
4. What is sync? Divided into many parts, the sync signal is the portion of a video signal that coordinates the signal of the transmitter (a VCR, for example) with the receiver's (TV's) delay. The sync signal's horizontal blanking region tells the monitor or TV when to start "printing" the next scan line. The vertical blanking region tells the "printing" gun to shut off and return to the top left of the screen to start the next field. Also included with sync is the subcarrier, or color, information. House sync, or what is sometimes called blackburst, is the reference that is fed to all the video sources to time the system. With the system properly timed, you can make clean switches and edits between two or more sources.

5. What is a TBC? It is easiest to describe a Time Base Corrector (TBC) by explaining why it is necessary. Videotape is an amazing medium. Unlike film, which has to be processed and developed before it can be viewed, videotape can be replayed immediately after it has been recorded. This "instant" medium, however, is very complex. Inside of a videotape recorder, a pinch roller pulls the tape around a spinning drum—supposedly at a specific speed. Supposedly, I say, because velocity errors are always a possibility: The slightest deviation in either the drum rotating speed or the speed of the pinch roller can result in skewing or picture jitter. To compound that problem, no VCR without a built-in TBC can produce a signal sufficiently stable to properly sync with another video signal. Obviously, this is a breeding ground for disaster! What can save us? A TBC.

A TBC strips off the sync portion of the video, which tells the monitor how to lay down the scan lines. It then stores the video in memory and, at the output, lays down corrected sync that makes the video stable enough for broadcast standards. Some TBCs have processing controls to adjust the set-up level, video and chroma gain, and chroma level. Depending on its memory, a TBC can also freeze a frame of video. ►

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Most TBCs today have an infinite window and can hold a full frame of video; others have only enough memory to store 16 scan lines. Dual-channel TBCs accept two inputs and allow you to switch between them—using effects, if you wish—just like a switcher (a device through which you can send, manipulate, and assign multiple video signals). A TBC can be genlocked (see Question 6) or timed to a switcher, so that it can be used as an input. A TBC's primary function, however, is synchronization. If you are using more than one VCR, you will need a TBC to make switches and edits. Stay tuned for a roundup of TBCs next month.

6. What are genlocks and encoders? An encoder takes the computer output, RGB or component video, and converts it to composite video that can be fed into a VCR or video switcher. While the Amiga 1000 has a built-in encoder, you must purchase one separately for the A500, the A2000 line, and the A3000. Some encoders include a "key" output for input to a switcher. A genlocking encoder (or genlock) times the computer to the video system, allowing you to overlay Amiga graphics on incoming live or prerecorded video.

7. What is A/B roll editing? A/B roll editing is the process of combining video frames from two source VCRs (called A and B) into a single continuous segment—just like cutting and pasting paragraphs from two memos into one new letter. By using a video switcher or a digital effects unit (such as NewTek's Video Toaster) you can do dissolves, wipes, squeezes, zooms, fly-ins, and other transitions between video A and B. (After all, cut-to-cut-style linear edits are not the most exciting way to look at video.) The A segment's duration is preset with a marked "out-point," and at the given time, an effect (such as a dissolve) is "triggered" to affect the second source. Be warned: Each of your sources must be properly timed, or you will not achieve a clean switch (yet another reason to buy a TBC).

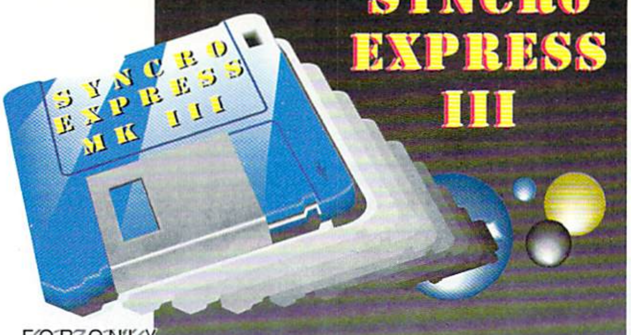
8. What is SCH phase? The SCH (Subcarrier-to-Horizontal) phase is the timing relationship between the leading edge of sync and the zero crossing of the reference subcarrier. To properly time your system, you must ensure that its SCH phase is accurate. No, you don't need an engineering degree to do so. You do need a TBC, which ensures that the horizontal blanking and the subcarrier frequencies are synced to each other. In a sense, you already adjust subcarrier frequency every time you tweek the tint or hue knobs on your TV.

9. What is SMPTE time code? SMPTE time-code is a timing pulse laid down on the tape's audio channel or a dedicated address track as the recording is being made. It assigns specific times (or addresses) to each frame of video in hours, minutes, seconds, and frame numbers. These frame addresses will remain the same regardless of the playback machine. To simplify the editing process, you can make an edit decision list of the start (in) and stop (out) points of the various segments, based on their time-code addresses. If you have the appropriate equipment (such as MicroIllusion's TCRG 102 Time Code Reader/Generator and Edit Decision List Processor software or RGB Computer & Video's AmiLink editing system), you can automate your edit session using the edit decision list and time-code signals.

10. What is Y/C? The Y, or luminance, is the portion of the video signal that contains the black-and-white contrast information. The chrominance, C, portion contains the color information. In combination, the two create colored video. Caused by a timing problem between the source and the destination, Y/C delay occurs when the color and the contrast portions do not match, resulting in color bleed. You can adjust this on most TBCs. The S-VHS standard processes the Y and C components separately to avoid cross-luminance and cross-chrominance artifacts such as chroma-crawl and bleeding. Keep in mind, however, that the same artifacts can occur when you're dubbing your S-VHS tape back to standard one-inch, $^{3}/_{4}$-inch, or VHS tape. ■

Joel Tessler is a video and animation consultant to several cable stations and networks. Write to him c/o AmigaWorld, *80 Elm St., Peterborough, NH 03458.*

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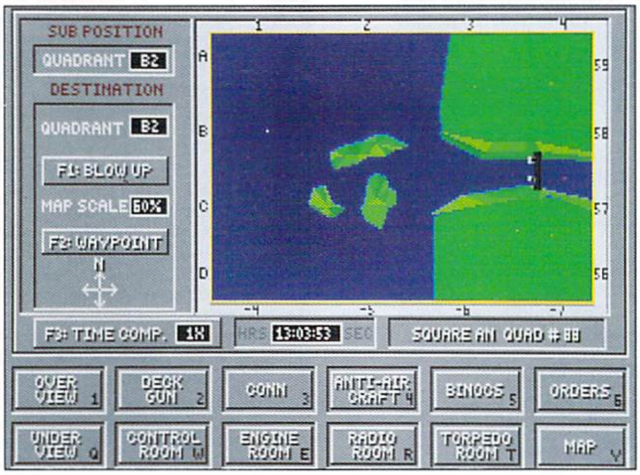
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THE GAME PRESERVE

Das Boot

By John Ryan

In war, the pressure can kill you. With Three-Sixty Pacific's new submarine simulation, Das Boot ($49.95), the pressure comes somewhere around 200 meters below the surface—crush depth, a submariner's worst nightmare. Based on the novel (and film) of the same name, Das Boot (The Boat) attempts to recreate the risks that were inherent in World War II U-boat operations. You'll experience crush depth more often than you'd like. You'll listen to rivet-popping pressure grow on the hull and hear metal scream. You'll brace yourself as enemy depth charges and mines explode.



Your view from the navigation station.

Like other submarine simulations, Das Boot's systems are operated from various control rooms. In the Radio Room, you can send and receive messages. Here you can radio in the results of missions and receive further orders. The messages you can send are limited to your current situation, but you can also request resupply ships and permission to withdraw from an area.

You'll find the periscope in the Control Room, along with the rudder and dive-plane controls. Depth and speed gauges and the compass are also here, plus the diesel and battery indicators. The Navigation station is where you spend a lot of time setting in waypoints and generally trying to avoid running into anything but open water. If the diesel fumes starting getting to you, the conning tower and deck-gun stations offer fresh, albeit dangerous, air. All of Das Boot's selectable controls are embossed gadgets, and messages and control information can be clicked away once you read them.

Das Boot also offers great flexibility of view. You can command a 360-degree view at the periscope, gun, conning tower and binocular stations. Likewise, external cameras provide the means to view your sub from any angle, whether the sub is submerged or running on the surface.

Before you tackle the missions, enter the Baltic Training scenarios. You won't survive the first encounter if you don't. You'll learn how to skirt underwater mine fields, make torpedo runs, go head-to-head against subs, man the deck gun as enemy dive bombers attack your surfaced boat, and more.

The graphics are very good, but the sound (fully available with one megabyte of RAM) is the hallmark of this game. The digitized sounds of torpedoes running, explosions, droning aircraft, and water rushing by your hull are riveting.

I must, however, qualify my high praise for the program: Das Boot is a dog on a 7 MHz machine. True, you can adjust the world detail to help speed up matters, but I still found the sub's response sluggish in the heat of battle. You might want to consider an accelerator board.

Thankfully, Das Boot is not copy protected and ►

To locate developers of the games reviewed, see the "Manufacturers'/Distributors' Addresses" list on p. 96.

Crib Notes

By Peter Olafson

You'd think present-day wars would be more than enough to keep people's minds occupied. But *Future Wars* (Interplay, $49.95) commanded a healthy share of this month's reader mail. So what could I do for our troops at the front (of their Amigas) but dig them a nice little foxhole?

• For starters, some people are in that little room with the keypad-controlled door and the very interesting descending ceiling. If you took a really close look at the type of stuff in the office you just left, you should know what to punch in.

Once through the door, you'll find a machine, which some readers are having trouble running. You just have to do things in the right order. Put papers in the slot *first,* and I'll let you figure out which button to press next.

Getting the monk's robe down from the tree in the woods is another sticking point. You'll need special equipment, and obtaining it is mainly a matter of making all the right stops first. On the first visit, you can't do much more than glare at the robe and shake the tree. The shaking does free a coin, however. The coin buys a seat at the inn. Table talk overheard at the inn appears to trigger your access to the castle (if you flash the right object). When you leave, the lance belonging to the guard—now asleep—should finally help you get the robe. This requires some experimentation, but you'll eventually find the right spot to stand.

If you take a close look, you'll see that the wolf guarding the monastery entrance has a weakness. He's electric, and electricity and lake water don't mix. You can pull the same trick on him.

The basement in the monastery is still giving folks big trouble, so ►

may be installed on the hard drive. It plays quickly (as far as moving from station to station), and the learning curve is not as bad as it may at first appear. The manual is laid out well and sprinkled with interesting historical tidbits. You'll even find the novel and a special offer for the movie bundled with the software. If you like submarine simulations, Das Boot is the best of the lot.

Bane of the Cosmic Forge

By Peter Olafson

The sound is primitive. The graphics are more EGA than Amiga. The speed is. . .well, I've seen eight-bit games move faster. So, why am I having so much fun with Sir-Tech's Bane of the Cosmic Forge ($59.95)? Because, despite those shortcomings, this sixth Wizardry scenario—the first on the Amiga—is an absolutely splendid dungeon role-playing game. Its rewards are great, and its promise is immense. Bane is the first of a projected series.

The cosmic forge is a magic pen with the power to bring into being what it writes. Naturally, a bad king and a bad wizard got hold of it, made liberal use of it and had a falling-out over it. They've disappeared, and the king's castle stands empty (sure it does), which is where your party of six comes in.

Graphically, Bane is closest to games like The Bard's Tale: A central three-dimensional window is framed by portraits of your six characters and has a text window beneath. In terms of depth and cleverness, however, nothing comes close to it. Among Bane's virtues are four alternate endings, elaborate skills development, some very sneakily designed sections (mapping is a must), nicely logical yet damnably difficult puzzles, a pair of delightful and almost invisible quick-reflex games for door forcing and lock picking, a vast interlocking environment, and even a text parser for talking and trading with characters.

While there's a good deal of the usual monster meat for hacking, it's not excessive for a game of this type, and you can gain experience point bonuses for solving puzzles. The layout is a sprawling tangle of castle, dungeon, mountain, tomb, and swamp.

I do have a few quibbles. The stone walls, with little but candles and occasional niches to distinguish them, do get tiresome after a bit. The character-creation scheme can't be abandoned until it's complete. You can save only one game at a time, and inventory management is clumsy. Let's face it: In purely technical terms, Bane is distinctly a first effort, and the artwork is grainy.

The larger monster animations can slow Bane down to throw-up-your-hands-and-walk-away speed. Even typing a spell name in the copy-protection sequence seems slow. (One plus: Bane does multitask on Amigas with more than one megabyte of memory.) Take heart, however. Designer D.W. Bradley assured participants in a recent GEnie conference that the graphics routines are being overhauled for the sequel so as to use the Amiga's power.

The sound quality is decent, but the sounds themselves are purely decorative, and they're not even well chosen decorations. Some character classes enter encounters to gabbling that sounds like a call to order at the Village of the Damned's town meeting. The death scene is accompanied by a sound doubtless intended to be a moan, but it seems much more like a moo.

Nevertheless, I have to recommend Bane. This is one instance in which a good game is simply a good game—regardless of how it measures up to the specs of a particular computer. Dungeon Master, look behind you. There's a new longsword in town, and its name is Wizardry.

Blue Max

By John Ryan

After all the high-tech fighting in the Persian Gulf, it's nice to step back to basics—if you consider it basic enough to get blown out of the sky in a Fokker biplane.

Blue Max, Aces of the Great War (Three-Sixty Pacific, $49.95) faithfully recreates the excitement, danger, and fight-or-die atmosphere that surrounded the air war during the last stages of World War I. Choose from one of eight authentically detailed fighters, each burdened with its ►

here's an outright answer. You need to use the remote control on the wine barrels in the cellar. One of them will open.

The future looks bleak, doesn't it? Rubble everywhere, and not a Flintstone in sight. This is one of several scenes where you'll need to check out every little bump under the rug. Don't leave until you find the blowtorch and fuses. And you can't leave until you find the manhole. (It's in the right screen.)

The manhole leads to the sewers, natch, and the sewers lead to a grotesque sewer creature who's saying his very special kind of hello to a mommy and her child. You have just the weapon to play hero—and the ammo, if you've been watching the pipes on the walls—but using it requires some special tactics. (You'll want to save the game and experiment with the distance at which you open fire.)

A lot of folks are stuck in the Crughon jail cell, and they're all missing one thing or another. One is the rather difficult-to-pick-out item on the floor of the hidden monastery room in which you found the princess. There's also a key to opening the grate (an item you should have had almost from the beginning), and you'll need something to cover it once it's open so your escape plan doesn't blow back in your face. The newspaper machine in the subway station does work. Persevere. In buying a newspaper, haven't you ever had your coins trickle into the return slot the first time through?

The spot where most people seem bogged down is the escape from a totally different Crughon ship once it's landed at the alien base. You're not going to get very far if they can eavesdrop on you—notice the camera up there?—so first put the clothing you found in the suspended animation chamber to good use. Now you can take a nap.

When you wake up, move over to the back wall near the door, as quickly as you can. Time is of the essence. As the door opens, pop the invisibility pill you found on the princess and, once the guards have cleared the door, get out of there.

You're not in the clear yet. That pill's going to wear off soon, so ►

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Zero in on the MiG, before he zeros in on you.

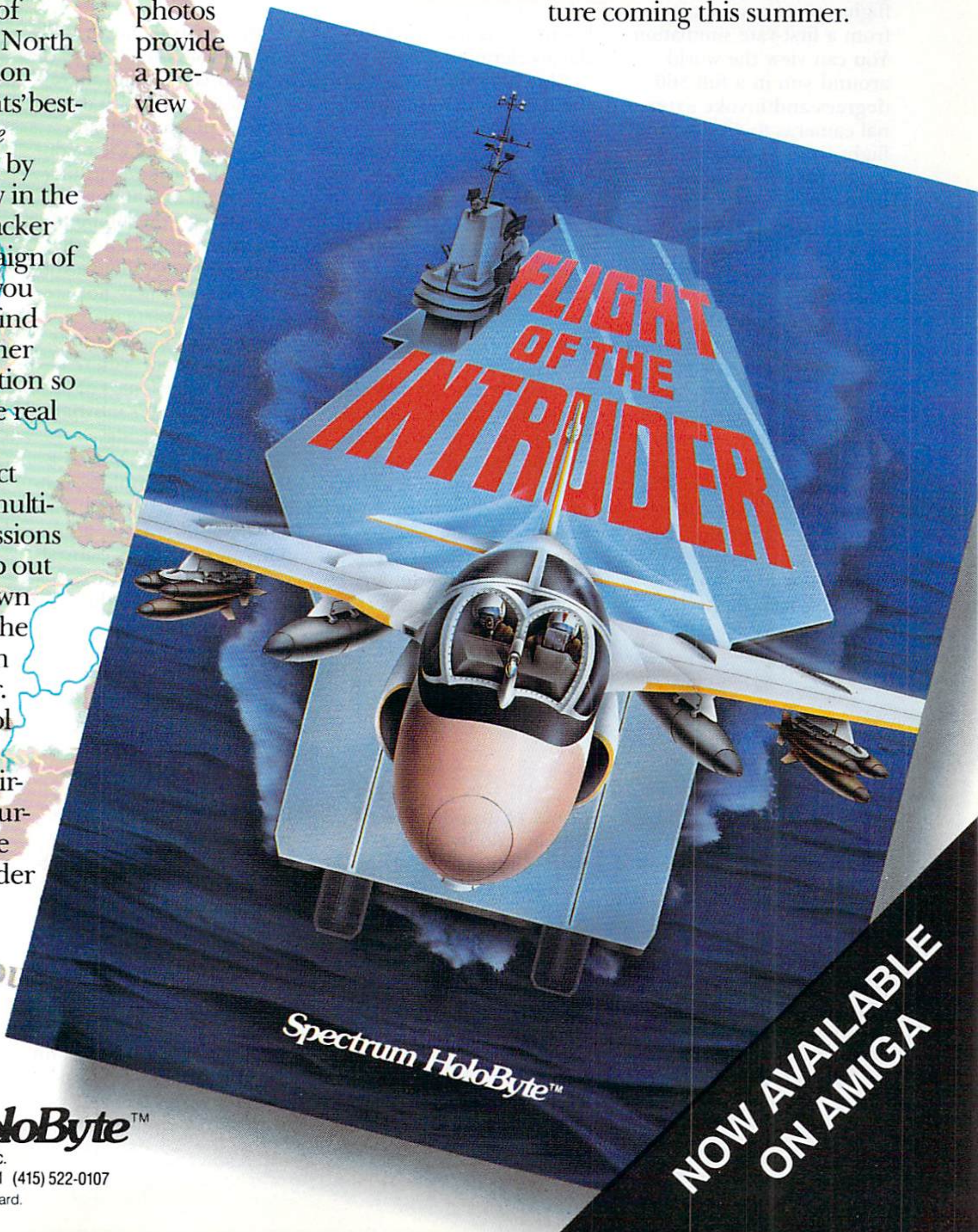


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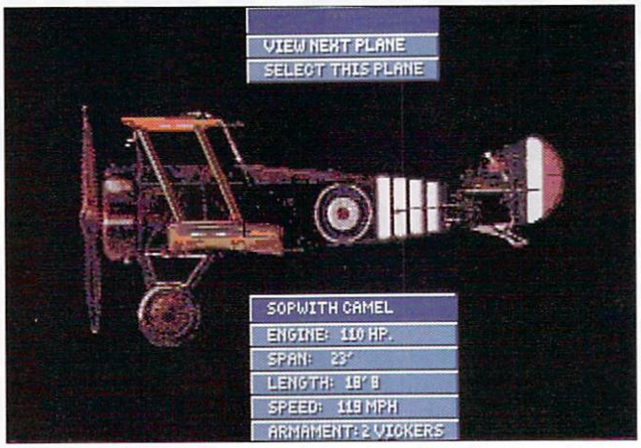


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own peculiarities and constraints. You'll find the Fokker DR I, the Albatross, the Spad, and the Sopwith Camel, among others. Learn their different handling capabilities quickly if you want to live past your first mission.

Missions are what this combat simulation is all about, and you can fly them alone against the devious machinations of your Amiga, or head-to-head against (or in concert with) another player. The one-player mode offers all the flight options you expect from a first-rate simulation. You can view the world around you in a full 360 degrees and invoke external cameras to view your flight from just about any angle. Moreover, a VCR function can record your entire flight so that you can play back and study how well you crashed on the last mission.



It was good enough for Snoopy; is it your choice?

Two-player mode splits the screen into two sections. I didn't try out this mode with another player, but there is a peculiar circumstance that may arise here: Only one of you can use the mouse or joystick. The other player must use the keyboard. This could get confusing, as several keyboard functions must be used for basic flight. (I envision two players with knotted fingers, vying for the acceleration key.)

Blue Max hosts a bevy of flight and environmental options, as well. The weather, wind, world and cockpit details, and realism of the simulation are all easily changed. One unusual option is strategic game play. This aspect works almost like a board game; you must plan your pilot's moves on a hexagonal grid. Here, you don't actually fly the airplane. Instead, you must direct aircraft around on the board, then sit back and watch them carry out your orders in a three-dimensional window in "real-time." You can develop a serious case of nerves in this mode, for you must act within certain time limits.

Whether you choose to fly single missions or take part in larger campaigns, there's a lot to see and do in this game. Unfortunately, the most you'll see in the beginning is the ground rushing toward you at 100 miles an hour. While controlling the aircraft is rather basic, the enemy aircraft will give you fits. Often you may not know which particular aircraft is firing at you. Once you figure it out, you're already in a fiery mass of twisted metal. It's infuriating. Keep practicing.

All in all, Blue Max is a thoroughly enjoyable (non-copy-protected) game. Great sound, music, animation, and hard-drive installation make Blue Max an ace of a combat flight simulator.

THE LOST PATROL

By Peter Olafson

The war many would like to forget has inspired a computer game that's eminently forgettable. The first Amiga game based on the Vietnam War, The Lost Patrol ($49.95) isn't a war game per se. This offering from England's Ocean (distributed in the US by Electronic Arts) is actually more in line with Cinemaware's brand of graphic adventure/arcade hybrids: a twisted jungle path laden with joystick cables.

The scene is 1966. Seven survivors of a helicopter crash are trying to find their way through enemy territory to the nearest US base. In the way are Viet Cong patrols, snipers, minefields, closed-mouthed villagers, and booby traps. Most of the game is carried out from a sideways-scrolling overhead map where you set direction and speed, scout the surrounding terrain, rest, set traps, and dole out food. With each move, you're shown a picture of the region the party is passing through.

The five arcade sequences are triggered as the party moves cross-country, and, with one exception, they're rather uninspired. There's simply ►

you want to get out of sight as soon as possible. Once outside the ship, that means down and to the left, behind those crates. One particular crate might even be worth taking a closer look at.

• There's a handy way to unblock a blocking lemming in *Lemmings* (Psygnosis, $44.99). Basically, you need to make him lose his footing. "Tricky" level 19 seems to be a major stumbling block in that game. You'll need to turn your first lemming into a climber, and have him bridge the pit at the right end of the level. Once he's started the bridge, jack up the flow of the lemmings to full. This will create an almost solid block of green hair in the entry area, but there should be a handful of better spaced-out lemmings walking just ahead of them.

Here's the tricky part. Pick a lemming about four ahead of the pack and turn him into a climber. When he's climbed the little step, turn him into a vertical digger and then almost immediately into a horizontal digger. This will allow the great majority of trailing lemmings to walk over the lowered "step" he's created and escape. (They should reach it just when it's ready for them to walk over.)

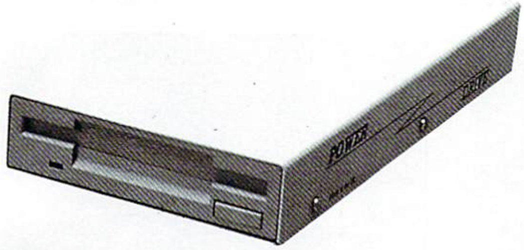
But what of our little friend the horizontal digger, and what of the spaced-out lemmings who were too late to cross the lowered step? Well, once the digger hits the bottom of the pit, he'll go back to being a climber and find his way out. If you've run this right, you should have just enough climber assignments left to take care of the rest of the crew.

• Some folks are stuck on the brink of the chasm that separates the dungeon and the mountain in *Bane of the Cosmic Forge* (Sir-Tech, $59.95). The women who fled from you in this region should have given you a clue. It's a two-part solution: You'll need a rope and a grapple to connect her by. The rope can be had up in the belfry (provided you have the bell key and a good sense of your bearings) and the grapple in the Captain's Den. (For that, you'll first need to get the password from Queequeg—by hook or by crook—

Continued on p. 55.

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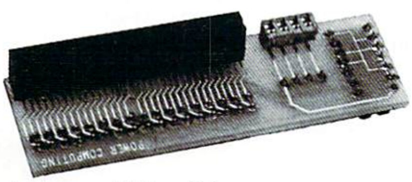
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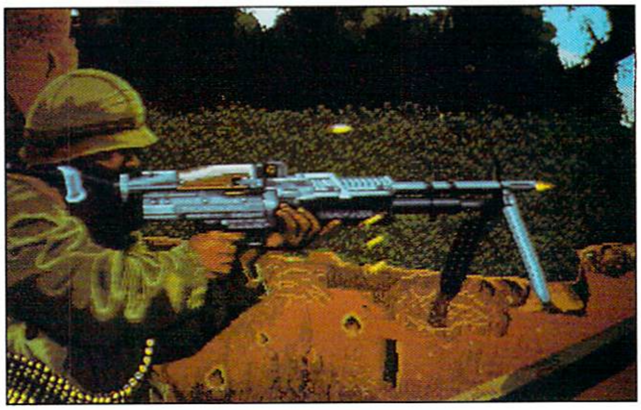
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not a lot to the game. The graphic interludes (18 stills and 10 animated pictures) are nicely drawn, and the five black-and-white digitized animations have a newsreel immediacy the first time they appear, but



It's 1966 all over again.

they don't *do* anything much, aside from taking up disk space. At least, you can toggle them off to increase the playing speed.

Moreover, The Lost Patrol captures none of the tension of war; you never feel as though you're down there in the jungle. You don't even feel lost. You can scroll the map all the way to the base, so there's rarely a question about which direction to take.

The game's not the only thing that's thin. The rules are too brief, missing some details (on terrain and on interacting with villagers, for instance) and simply wrong on others (such as which mouse button to press to rise from concealment during combat).

The Lost Patrol has some good bits, to be sure. The sniper sequence is a challenge—as well as an artistic success—that stresses the very skill (keen eyesight) a soldier would have to have in such a situation. The theme is pleasant until your Amiga plays it to death. (You can shut it off, too.) And I liked being able to load and save games from RAM. Most of these, however, are just little niceties. They can't salvage The Lost Patrol.

INDIANAPOLIS 500

By David Randall

If you crave the thrill of moving extremely quickly, hop into the driver's seat of Indianapolis 500 (Electronic Arts, $49.95). It's a winner.

True to EA form, it requires you to stop and read the command summary booklet before playing (at least for the look-up copy protection). The opening menu's practice option takes you into pit row, where a plethora of information is at your fingertips. Read the manual to familiarize yourself with these customizable options, even if you never intend to tamper with them.

When it comes time to drive the car, don't get cocky. I careened down pit row and promptly hit the barrier at the end; Indy 500 is very difficult. The open-wheeled car is sensitive to joystick commands

and is often just plain fickle. Minimize turbo-boost, set the wings to at least three-quarter drag, take it really easy the first few laps, and you'll encounter only a few walls.

When you think you've practiced enough (trust me; you haven't), set up your car for qualifying: Put on the softest tires, lessen drag, set boost to maximum, put fuel at five or ten gallons, and set the antiroll bars and shocks as stiff as you can handle. Experimenting with tire pressures and wheel camber also helps. While this takes time, patience, and technical know-how (see why I advised reading the manual?), it will produce quicker lap times.

Be ready when you select Qualify mode from the menu, for the car immediately comes out of a corner at full speed three turns down the paddock straight. This is an implicitly poor feature. You need the first three turns in the lap to get used to the speed. Couple this with many more destructive wall collisions, and you're back in the pit.

After qualifying, you start the race in a position based on your lap times and average speeds compared to those of the computer opponents. When you select the race option, you have three choices: ten laps with no damage or yellow flags; 30 laps with no damage; or 60 to 200 laps with damage and yellow flags. More combinations should be possible, as few people have time to play a 60-lap game, much less one that consists of 200 laps.

Race mode also adds other cars to the competition, which makes a surprising difference in lap times. At the end of the race, you can either share in the victory celebration (or losers' whinings) or mull over the virtues of a modified wheel camber and prep the car for the next race.

Despite the lack of race-condition combinations and hard-drive support, I fully recommend Indy 500 to anyone who enjoys racing games. It's fun, fast and challenging.

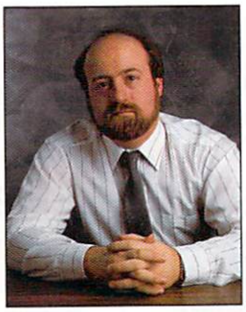
From p. 52.

and a gift from L'Montes for rescuing his beloved.)

• Questions have begun to trickle in about *Ultima V* (Origin, $59.95). Some people are looking for the word of power that gives access to Doom in the underworld. It's available from the Codex, but only if you've been good, avatar-wise, and if you've completed the eight shrine quests. (Actually, if you've played Ultima IV, you probably know it already.)

There's also been a question or two about earning money. (Try the dungeons, and use the party's smartest characters when selling booty to get the highest price.) And I've also had inquiries about the rest of the harpsichord tune Lord Kenneth tries to teach you at the Greyhaven lighthouse—important because it will open up the door to the sandalwood box in Lord British's castle. As I recall, this is simply a matter of translating the notation of the song in the documentation into numbers. (For instance, the opening A-B-C is 6-7-8, and the rest should come easily. Tell it, baby!)

As space is tight, the promised lowdown on Bard's Tale and BT II will have to wait until next time. If you need help with a game, or simply want the dubious thrill of seeing your name in print, you can write to me by US mail at 12 W. 104th St., Apt. 3E, New York, NY 10025, and via electronic mail at P.OLAFSON on GEnie and Peteroo on People Link. Sending a SASE will earn you a personal reply (once I get the other 200 or so letters out of the way). ■



HELP KEY

Our resident sage solves puzzles about postscript output, boosting A2000 memory, and more.

By Louis R. Wallace

Postscript Problems

Q: *My department has authorized me to purchase a new computer, which is to be used primarily for word processing. I have an Amiga at home, and have been trying to get one at work for months now. It comes down to this. If I can show them a word processor that will produce the same quality output as the Mac we already have, it will be approved. Our printer is a Postscript-based laser printer. So far, most of the word processors I have tried that can use fancy fonts simply print out bit-map pages, which looks pretty poor next to the Mac output. My question is this: Is there any way to get decent Postscript output from a word processor on the Amiga?*

W. White
Tallahassee, Florida

A: You bet there is. The trick is to choose a system that can use Postscript fonts, not the Amiga's bitmap fonts, for output. My system is connected to a Postscript printer, and I use New Horizon's ProWrite 3.1 as a word processor. To get the best output to the Postscript printer, I use their ProScript accessory package with ProWrite, and the results are as good as your printer and selection of Postscript fonts can give.

Another technique you could use is to try the new ProPage 2.0 package from Gold Disk. Within this desktop publishing package is a word processor called Article Editor. Combined with ProPage's powerful desktop-publishing features, you can get outstanding printed output.

Color Conundrum

Q: *In a previous Help Key, you had a letter from a user who had created a series of images for an animation, but had a problem in that each frame had a different palette. To solve his problem you suggested converting each frame to a constant color palette. My problem is similar; however, I need to create animations with different palettes in each frame. My question is whether there are any animation players/builders that will play an animation having a different palette for each frame?*

N. Bierde
San Francisco, Calif.

A: Absolutely! Progressive Peripherals & Software has a program called The Animation Station. This program has many features for manipulating animations, not the least of which is the fact that it will play animations that have different palettes in each frame. Included with it is a PD utility called AnimBuild that will build an animation from a series of frames, even if they all have different color palettes. (The Animation Station also allows you to create animations that have different display times for different parts of the animation.)

In addition, the animation-player command in Commodore's AmigaVision will play animations that have been created using individual frames with different color palettes (and display times).

Vanishing Act

Q: *I am twelve years old, and I like to program in AmigaBasic. I have wondered if in this language there is any direct way to make the sizing gadget, the outer bars and the close gadget disappear? If there is no direct way, could you recommend another method or language?*

B. Mullen
West Des Moines, Iowa

A: AmigaBasic, in its current form, does not offer many options for its windows, and it does not support borderless windows, which are what you are describing, even though the Amiga's Intuition system does have them built in. The easiest method of generating them in Basic is to use another Basic like the HiSoft Basic Compiler system. Very similar to AmigaBasic, this offers a number of graphic options not available in AmigaBasic. And, since it is a compiler, your programs will run much faster. In fact, if the source programs are fairly large, they may—once they're compiled—become much smaller than the slower interpreted versions.

AmigaBasic has been out for a long while. Even though it was the most advanced Basic that Microsoft had ever produced when it was first released, it has aged a lot since then, and the aging process has not been particularly kind to it. However, rumor has it that an upgrade is now underway, although there is no information to indicate when, if ever, it will be finished or released.

Breaking Out of the Nine-Meg Limit

Q: *I'm an animator using both NewTek's Video Toaster LightWave program and Impulse's new Imagine animation system. My biggest problem with both of these is the fact that even on my nine-megabyte Amiga, I am running into memory limitations due to the number of objects and 24-bit textures I am using. Is there ever going to be a solution to the nine-megabyte limit on the A2000 series?*

D. O'Brian
New York, N.Y.

A: There already is. Great Valley Products has two new 68030 cards that will allow more then nine megabytes of 32-bit memory on board. One is running at 22 MHz, while the other operates at 33 MHz. Both cards can have up to 16 megabytes of memory on board. And if A2000 versions of 68040 cards show up this summer, as several companies are planning, you can expect to see these accelerators supporting from 16 to 32 megabytes of memory. ■

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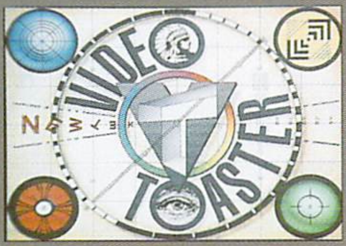
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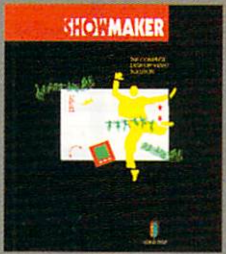
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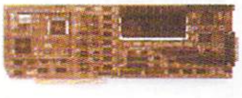
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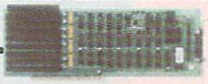
*50 Mhz board, others hold less

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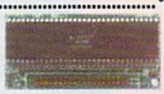
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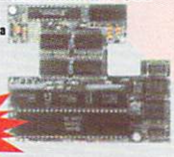
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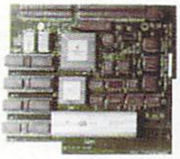
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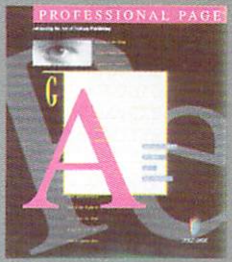
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From p. 18.
with, and that the grid has a finite number of points on it, you will understand what Terrain does. Spend ten minutes with Terrain and you can master it—it's really that easy to learn.

Your choice of screen renderings includes wireframe, polygon (wireframe with hidden-line removal so you don't see through object elements), and a filled mode with a simulated light source and natural colors. You can perform any of these from a North, South, East, or West viewpoint, or from the point-of-view of a camera (similar to Turbo Silver's camera object) that you can drag to any point in space above or below your grid and then aim in any direction.

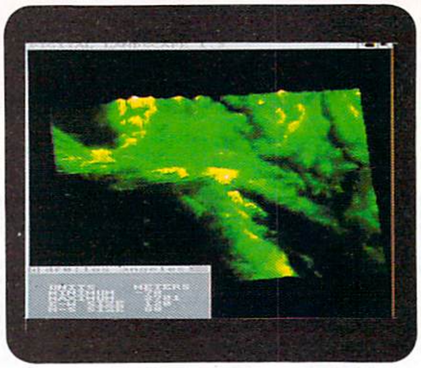
Terrain's output can be a series of Turbo Silver "cell" files for animating in that program, or it can be a single object file. Imagine cannot deal with sequenced Silver cells, but since Terrain can also generate Silver-format object files, this will do for Imagine. If you want an IFF picture from Terrain, you must use a screen-saving program.

Don't buy Terrain if you want only to create free-standing, realistic IFF scenery pictures. That's not what it was designed to do. Turbo Silver users will get the most out of Terrain. It is easy to learn, it gets the job done, and, best of all, it's fun to use.

The Reality Simulators

The United States Geological Survey (USGS), creates, catalogs, and sells "Digital Elevation Map" (DEM) data files of virtually every part of North America, as well as many other areas of the planet and other bodies in our solar system. A few ingenious Amiga software companies have bought many of these DEM files (primarily used by cartographers, seismic researchers, and other scientists) on nine-track VAX-readable tape and have distilled the data into files their own programs can digest and render. This is the case with Digital Landscape, Vista, and Vista Pro.

Keep in mind, however, that landscape data files for these different programs, although they are derived from the same data purchased from the USGS, are mutually incompatible. You cannot, for example, directly load a Vista .scape file into Digital Landscape, or a Digital Landscape .EN file into Vista. I wish someone would devise some conversion software for these files among the several programs. Also, while some of these programs can save 3-D objects, none can load them.



Los Angeles never looked better, thanks to Digital Landscape.

DIGITAL LANDSCAPE

Digital Landscape (DL), from ***Digiscape Software*** and priced $124.95, accepts real-world terrain data from three accessory disks included with the package. More than 150 real locations in the US, Canada, and Mexico are mapped on these disks, including such places as the greater Los Angeles Basin, Chicago and Lake Michigan, Boston, San Francisco, Quebec, and more. This is an absolute wealth of data to explore and render.

DL's data files are supplied in either 1:250,000 scale or 1:1,000,000 scale, which means the points of data represent locations hundreds of meters apart. Hence, each data file covers a rather large piece of real estate. As intriguing as all this data is, however, DL presents some real problems when it comes time to load and render the scenery.

DL was written in compiled HiSoft BASIC. The interface is primitive compared with the other software discussed here. When you first try to load a data file from disk, you are not even offered a standard file requester—just a single-line, string-input gadget (text box) that asks for a name. As a data file loads, your pointer does not change to a "sleepy" mode, so the only way you know a file has finished loading is to watch your disk drive's light. I might have put up with this methodology five years ago, but today it just feels cumbersome.

Rendering modes are all accomplished on a 320 × 400 interlaced screen. No hi-res. No overscan. No HAM. No 24-bit. You choose from two-color wireframe, multicolored wireframe, flat contour mapping, mesh (like a wireframe grid), or filled mesh. In my opinion, this last mode is the only one that offers a satisfactory rendering. DL offers no palette control, and it takes about the same amount of time to display the landscape in all of the modes.

The requesters for altering your point of view that *are* available are pretty clunky to operate. There is no "camera" or "target," per se; instead, you control the landscape view by changing declination, rotation, and scaling—as though the scene were presented fixed to the head of a tripod that you could swivel around and move closer or farther away. Like other compiled BASIC programs I have used, feeding improper input to some of DL's requesters can cause a complete and immediate shutdown of the program, forcing you to rerun it and start over.

Digital Landscape does let you create your own data files from scratch—a laborious process of entering many data points that you must calculate yourself from whatever mapped data you have on hand. As the manual suggests, this allows you, for example, to create population-density maps or to plot forest fires by area. What you get out of the exercise of making your own data files depends wholly on how much you put into it.

> ***YOUR TURN!***
>
> Digital Landscape made a very good start, although I am not using it now. Creating the landscape I needed for outdoor scientific testing was too tedious, and it stressed the capacity of the program. I really don't think the program is finished yet.
>
> ***Dave Higgins***
> *Albuquerque, N. M.*

What this software really needs is a complete overhaul. It should be rewritten in a faster language. It needs real file requesters, more rendering modes, and palette control. The most entertaining aspect of Digital Landscape as it now exists is the abundance of landscape files on the disks in its package.

VISTA

Virtual Reality's two titles, the original Vista ($99.95) and the newer, powerful Vista Pro ($149.95), are both winners. Vista was the first low-cost, real-world, landscape-rendering software ►

Circle 13 on Reader Service card.

with a pleasing output. Vista Pro incorporates many of the original Vista features, but adds a number of new ones while also significantly enhancing its rendering capabilities and sheer power. Both programs make extensive use of the USGS DEM data files included with the package.

Vista's interface is logically arranged and easy to learn. The right half of the screen contains most of the program's flexible controls. Two tiny characters atop the landscape represent your camera and its target. By using either the mouse or gadgets, you control where the camera sits and where its target is located. Put your camera way up in the "sky" and the target directly below it at ground level, and you will get a bird's-eye view of the entire landscape. Put the camera close to the ground, and you can explore peculiar nooks and crannies of the terrain.

Gadgets and requesters give you

YOUR TURN!

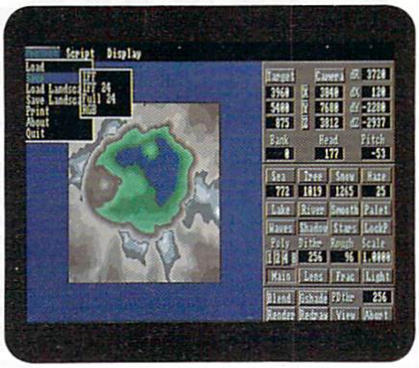
I have nothing but praises for this ingenious and fast mapping program. Vista is easy to use in testing animations by rendering in the eight-polygon mode and then saving to a Turbo file if you like what you see. It would, however, be nice to see support for other 3-D programs.

Scott Ostermann
Winnipeg, Manitoba

command of snow and tree levels, blending and smoothing algorithms, haze (atmospheric distortion) factor, wide-angle or zoom lenses, and north/south/east/west light-source placement. You can fill shallow areas of the landscapes with the "lake" button, and run rivers with another button. Everything is geared towards increasing the life-like appearance of the final product.

Vista also offers random fractal-landscape generation at the click of a button, with billions of possibilities. While these "fantasy" landscapes expand the potential of the software, I think the ability to generate scenes of *real* places is where the true worth of Vista lies.

While Vista and Digital Landscape both use data derived from USGS



A bird's-eye view is one of the many choices available in Vista Pro.

DEM files, Vista's files cover much smaller areas, because it uses 30- instead of 900-meter data. This scheme has its good and bad points: While you get much more detail in any given geographic location with Vista-format files, you cannot render a large area with it (say, all of Northern California) as you can with DL. Any Vista-format landscape file is roughly four miles on a side. This is a limitation of Vista, but merely a difference in focus.

Vista's weakest element is the quality of its rendering. Although it provides four levels of detail (with each higher level offering a higher-quality picture), Vista has no shading algorithms. Because the object files are built of polygons, any part of the landscape that falls close to your camera's "lens" renders as a group of big, colored triangles. And Vista's only output mode is lo-res (320 × 200) HAM. *(Editor's note: According to Virtual Reality, the latest upgrade will feature Gouraud shading as well as the ability to draw trees.)*

Vista's scripted-animation features are fun to play with. Script Creation mode writes an ASCII text file on disk with a successive list of coordinates for the camera and target, including their elevations, headings, pitch, yaw, and banking. Once you create a script, run it, and Vista will churn away, rendering from each set of coordinates for whatever landscape is loaded, and saving the pictures to disk as separate, sequentially numbered IFF files.

Using another program, you can then sequence these files into an ANIM-format file. (Vista itself saves only the individual pictures.) Because the script files are plain text, you can tweak and edit them with any text editor. The sensation of actually moving through a landscape in an animation is astounding—well worth the time it takes to generate dozens, perhaps hundreds of scripted pictures for an animation.

Vista Pro

While Vista is certainly an enjoyable piece of software, its initial release led many to yearn for more features, more rendering modes, and more power. Vista Pro answers all of these requests. If you have at least 3MB of RAM, a hard disk, and an accelerator board, skip Vista and go for Vista Pro instead.

Vista Pro pulls out all the stops and overcomes the limitations encountered in Vista. Its output is pure eye candy—gorgeous stuff. Pro can render to *any* Amiga mode of resolution: low, medium, interlace, high, with or without overscan, 16- or 32-color, HAM, and 24-bit (16.7 million colors). The number of gadgets on the interface is three times that offered by Vista.

Vista Pro gives you control over sea level, shadows, starry skies, turbulent water, and dithering. Gouraud shading has been added as an rendering option: Turn it on and all those rigid triangles vanish, replaced by beautifully smooth, realistic terrain. Where Vista had four locations for the sun, Vista Pro has an infinitely variable and intuitive way to let you put the sun *anywhere* above your landscape.

Where Vista has a fixed wide-angle or zoom lens, Vista Pro's camera lens also proves infinitely variable. You can actually pull the camera back so far in space and set the lens to such a wide angle that you can make your landscape scene look like a tiny planet floating in space. For some other bizarre effects, adjust the camera's altitude so that it is below the landscape and looks up to it.

Both Vistas have four levels of rendering, each providing more detail at the cost of speed. Use the lowest power for a quick preview and then, when you are happy with your settings, shift into the higher modes for shadows and shading. Even in the most detailed mode, with shadows and shading turned on, you can figure on about five minutes to render a Vista Pro landscape on an 68030-equipped Amiga. Double that time for an '020 and make it about half an hour on an unaccelerated 68000 machine. (By the way, both Vista and Vista Pro come on disk in standard and 68881 versions.)

Vista Pro renders to a separate screen. Rather than painting the fin-

ished picture to the screen one scan line at a time from the top down, it presents your results to you as though you were slowly opening a set of miniblinds and looking out a window onto the world. This is a novel approach I'd like to see incorporated into other software.

Most operations in Vista and Vista Pro can be aborted in progress. Both programs can load and render all of the same data files, while Vista Pro comes with more than twice as many ready-to-render .scape files as its smaller brother.

Pro's animation-scripting features are similar to Vista's, but with one important and unique added option. Virtual Reality's proprietary animation format is not keyed to the amount of memory in your Amiga but to the size of the disk or device to which you are rendering. This means that you could actually fill WORM drive with one 500MB animation and play it back on a low-memory machine.

After an animation has been scripted, rendered, and saved, the VAnim player reads each frame from disk and either displays it in animated sequence or lets you step forward and backward through it as you would with the "jog-shuttle" control on some fancy video-tape deck. VAnim's drawback is that each frame is about double the size of a regular ANIM frame, which means the playback is slower.

Both Vista and Vista Pro can save Turbo Silver-format object files. Vista Pro embellishes this feature by letting you clip out just a small area of a landscape at its highest rendering mode. This enables the creation of object files that are very detailed, yet not too large to load into Silver or Imagine. Both programs can ouput to a printer.

Vista Pro is one of the most enjoyable and fascinating pieces of software I've had the pleasure to use in a *long* time, and it is, by far, my favorite of the programs discussed here.

BROADCAST TITLER 2

From CG to shining CG

By Geoffrey Williams

I USE CHARACTER generators a lot, and ***InnoVision***'s original Broadcast Titler sounded like a dream come true when it first appeared. I quickly discovered, however, that it was not sufficiently stable to use in an editing environment where any delay means a lot of extra money and an unsatisfied client. Happily, all that is changed now that I have the upgrade ($389.95, but available to first version owners for $40).

Broadcast Titler 2 (BT2) has not so far crashed on me, and I am impressed by the ease of use the mouse interface provides. You still have the option of keyboard control, but navigating through the various menus with the mouse is fast and simple. Clicking with the right-hand button at any time brings up a menu along the bottom of the screen. I wouldn't say the program is really "Amigatized," but I found it intuitive and well laid out.

With BT2, you can either type text directly onto the screen or load in a text file (but don't expect word wrap). Its editing features include adjustable subscripts and superscripts, cursor positioning via the mouse, character-by-character underlining (with adjustable positioning, thickness and color), automatic or manual kerning, and adjustable margins. Line editing lets you ►

cut, copy and paste lines on the page or across pages. You can also copy the attributes of a character (color, font, size) and apply them to text elsewhere.

One of the best editing features is the ability to reduce by one pixel the spacing between all the characters in a line. This alone saves hours of frustration by letting you squeeze that extra letter or two onto a line. You can also *increase* the spacing by single-pixel increments.

Graphics in Color

You can import pictures and brushes into BT2, thus opening up some interesting possibilities. With full control over positioning, you can have a graphic at the top, import brushes to use as bullets, and have another graphic at the bottom, each one using a different 16-color palette. If you want to take full advantage of BT2's powerful color capabilities, you should design graphics specifically for it. Certain palette positions, however, are used for certain things, so you need to plan this all out before you create the graphics.

You can use color cycling, but it limits you to a single color-cycle range using palette positions 1–7. Color cycling affects all lines in these palette positions. Because you can make the colors completely different on each line of text, it is possible to create several cycle ranges—although they are limited to the same speed.

A good example of BT2's flexibility is that you can type a line of text, type another line below it, and then increase the height of the lower line so that it overlaps the upper one. By changing the face color in the lower line, you can easily create two-toned text. I did this, and then made a long drop shadow that overlapped the lower line, giving the text an extruded appearance. I added the two-toned effect to the extruded text, and was then able to type more text in a different color over the top of the drop shadow (see the screen shot).

Each screen can be shown for a set time, or it can wait for a key press, or you can have random access to any of the screens. You can even assign sequences of screens to function keys. A very handy program option is Presto Pages, which allows you to render a page to memory in advance so that you can make it pop up instantly, a



BT2's two-toned text effect.

distinct advantage if your Amiga is not accelerated.

Transitions Aplenty

BT2 provides many transition options. Each of the 77 full-page transitions has nine speeds, and there are 16 line effects that you can assign to individual lines in any order. You can also set some lines to have simultaneous transitions, and you can add a delay by a set number of video fields. The effects are remarkably smooth.

One cautionary note, however: While powerful and wonderful, the color-palette capabilities are much more complex to deal with when you're doing transitions. Horizontal transitions can cause strange effects when color palettes on individual lines change between pages. Careful planning with your palettes is very important.

I like this version of Broadcast Titler very much, although there are a few changes or enhancements I would like to see. When you click on a button, for example, there is no feedback to let you know you really pressed it. A tone would help. In addition, while you can save pictures as IFF (including text antialiasing), the picture is reduced to a single 16-color palette. It would be great if you could also save out to Dyanamic HAM, or even to 24-bit IFF, so that you might import the images into other software with enhanced color capabilities. Finally, I would like to see more control over color cycling.

Not yet available at press time was the Font Enhancer, an optional package that lets you convert single-color Amiga fonts to BT2 format, adding anti-aliasing and the ability to resize fonts cleanly. As only four font types come with BT2, any serious user will probably want this extra package. Another upgrade offer for A3000 owners provides four colors per line in 1472×480 resolution.

If you need professional and clean character generation, I would recommend that you put BT2 at the top of your shopping list.

Bars&Pipes Professional

The pipes, the pipes are calling . . .

By Michael Hanish

CHOOSING A TOOL for creative work is an important part of the endeavor; the choice reflects and determines how it will proceed. Bars& Pipes Professional ($379, ***The Blue Ribbon SoundWorks***) is a serious, multi-purpose tool for people who are earnest about making music with sequencers. Fortunately, it is also straightforward and easy to use—even for the less experienced. The program's design allows you concentrate on making music rather than getting software to work.

Bars&Pipes Professional (B&P Pro) is structurally similar to its predecessor, Bars&Pipes ($199—see April '90, p.84 for the review), a less featured but hardly unprofessional package. Briefly, the sequencer design is such that information travels through a pipeline system (represented graphically). First, you feed triggering and control data (including MIDI) into one end; then Bars&Pipes records and places notation while your data is traveling through. Finally, the program releases the information to a sound source on the other end.

While your data is making its way through the pipeline, you can transform, generate, or filter it at any point in the chain with the various tools provided. You can add, change, move and/or modify notes, dynamics, articulation, and other musical effects in the middle, or sequencer, section by using one of several graphic notations (an event list, traditional note/staff, piano roll, or a hybrid combination). The number of tracks is limited only by available memory.

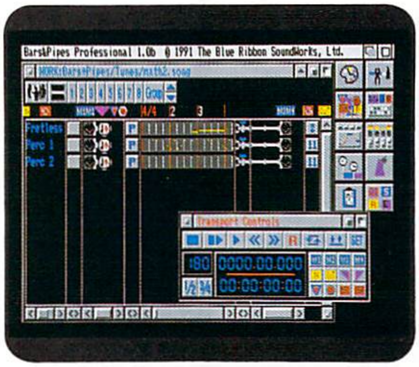
There is also a Playback function, using Amiga-generated sounds or MIDI, that you control by tape recorder-style transport buttons in a movable window. Space prohibits a

comprehensive listing of features; suffice it to say that Bars&Pipes Pro can do just about anything.

THE RIGHT TOOLS

The concept of Tools, common to both programs, needs special mention before looking at what else makes this program a "pro" version. The tools are akin to the stomp boxes electric guitarists use, one each for flange, echo, reverb, and so on.

B&P Pro's program disk offers a wealth of such tools in the form of tiny software modules that you can place at the in or out end of the pipeline or use to process a marked section within the sequence. You can purchase additional specialized collections of tools (MusicBox A & B, Internal Sounds Kit, Multi-Media Kit, and Rules for Tools, $59.95 each) separately. Each tool has a graphical control window you can use for setting its parameters in real-time as the music plays; and you can combine and edit several tools into a macro-tool.



Don't fret! Bars&Pipes Professional places you firmly in the driver's seat.

The B&P Pro Add-On Series provides a form of modular expansion and upgrade. You buy what you need. MusicBoxes A and B provide tools and accessories that further expand and amplify all the basic functions of the program. Among these are MIDI event (control, program and note) filtering and editing, chord generation, arpeggiation, multiple serial-port support and display colors.

The Multi-Media Kit provides the means for integrating B&P Pro into a synchronized multi-program environment by using ARexx. The score can be controlled by external commands or can trigger other events by sending ARexx messages and simulated keystrokes at specific times. A Recorder tool captures and saves all the details of a performance, and you can call for playback as a background task when the sequencer is not running. Also included is a conversion utility between SMUS format and the B&P Pro song format.

The Internal Sounds Kit is just that: a pipeline sample-playing tool called AmigoPhone; SpareKeys, which allows for mouse and keyboard input as an alternative to MIDI control; and a wide-ranging collection of high-quality IFF instrument and sound samples. Finally, Rules for Tools opens up tool and accessory design to anyone familiar with C programming.

Continued on p. 74.

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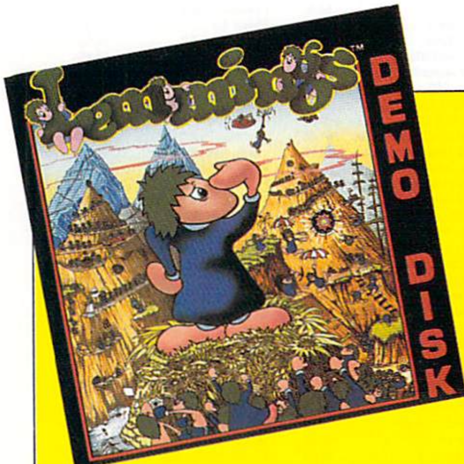
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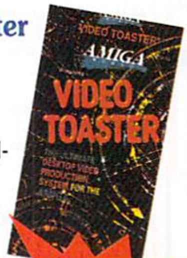


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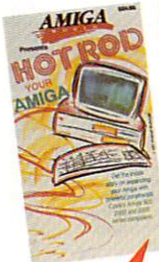
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The Musical Amiga

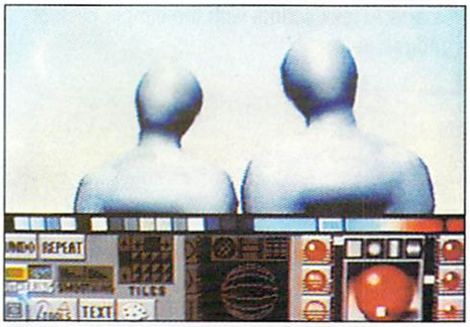
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Animation Video, Volume I



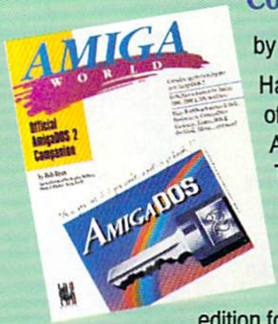
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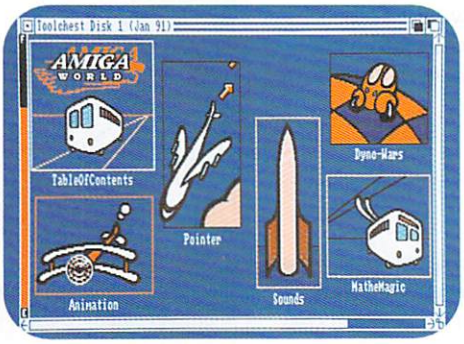


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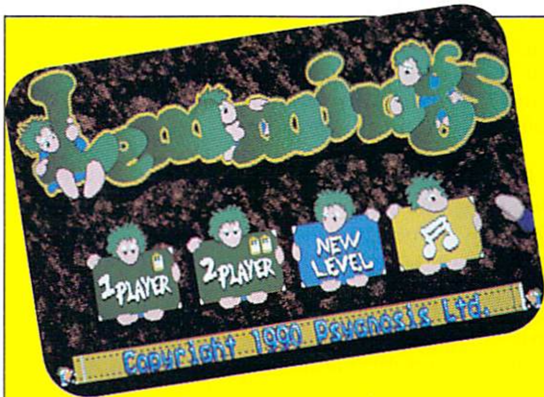
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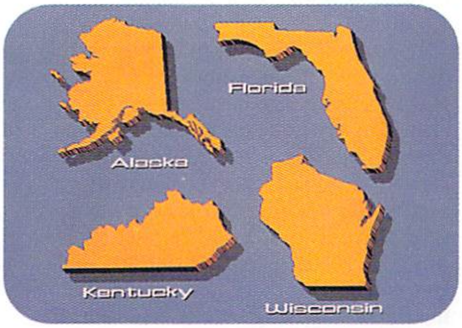
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From p. 67.
This package contains all the source code and instructions necessary, as well as The Blue Ribbon SoundWorks' active solicitation of freelance programmers for work to be included in future MusicBoxes.

B&P Pro has a somewhat new look compared to Bars&Pipes; it comes in the Workbench 2.0 style and colors (though these can easily be changed). All features (transport controls, tracks, metronome, and so on) are in movable, resizable windows. The icons along the right side provide instant access to any unopened windows, such as ToolBox, Tempo Map, Song Construction and Accessories. The configuration of the work space (window placement, function and look) is saved with the data of the song.

There are a number of notable enhancements to the original Bars&Pipes—too many to list in full. One of the best is the addition of print capabilities. The program displays each track in standard bar-and-staff notation for editing, and it automatically updates the notation to reflect any changes you make. You can then print the parts separately, or together as a concert or transposed score. B&P Pro sends all of this to the printer as a graphic image. Printing, although rather slow, is of quite acceptable quality. The program formats on a track-by-track basis, which at times is a bit clumsy. A global print format requester would be helpful, as would a way to send the score image to a Postscript printer.

A Little Music, Maestro!

Another wonderful new feature called MixMaestro automates mixdowns of recorded tracks. When MixMaestro's window is open, you can access the familiar slider and pan-pot mixing controls—one for each recorded track. Although these two controllers can send any MIDI-control change messages, they come preset to send volume and pan messages. This is an incredible pleasure to use and a tremendous help in post-production.

Not only does B&P Pro save the mix, but it also saves and replays all the real-time changes made in the mix while the song is playing. With the addition of the The Phantom ($299), the SMPTE interface device from Dr. T's, you can easily accomplish frame-accurate sync and cue to tape—all from within the program by using the Phantom accessory included with B&P Pro.

Other enhancements and additions include full clipboard support and editing (both track-by-track and globally), an ARexx port, system exclusive data record and transmit, graphic time-line scoring, song construction and tempo mapping, a background player program for single songs or juke-box multiple plays, and all the tools necessary to synchronize sound and images. B&P Pro comes with a basic assortment of tools and accessories on one non-copy protected disk. It requires a minimum of 1MB RAM to run, installs easily on a hard disk, and works in any Amiga system configuration under either Workbench 1.3 or 2.0.

In use, the program is stable and dependable. Tech support is friendly and extensive, the best one could hope for. Overall, B&P Pro is a comprehensive, deep, and flexible music creation and performance environment. The few times it behaved in unexpected ways, I had not set something correctly in one of the several layers of parameters. The price of flexibility is having to pay attention to all the options.

If there is something you want to do with music and the Amiga, B&P Pro can do it thoroughly, elegantly, and in more ways than you can probably imagine. It provides control down to the smallest details of the musical material, but its architecture is conducive to proficiency on many levels.

Bars&Pipes Professional won't do all the composing for you, but time spent learning to use this excellent program will repay you amply, widening the way you think about music making. The design facilitates all the functions of the program, making it a pleasure to use, which is the highest compliment that can be given to any tool.

DCTV

When it comes to video, looks are everything.

By Sheldon Leemon

THE AMIGA'S 4,096 colors, which seemed so dazzling back in 1985, are beginning to look a bit faded next to the new 16 million colors in PC and Macintosh displays. In a bid to add more zip to the Amiga's output capabilities, ***Digital Creations*** has come up with DCTV ($495), a unique hardware device that turns digital data from the computer's RGB video port into a composite television signal with the potential to display millions of colors.

Since most Amiga owners don't have a ready source of true-color images to display, DCTV also includes a slow-scan digitizer for capturing images from any still video source. To top it all off, the package contains a generous helping of software, including a real-time, million-color paint program and a program to convert your DCTV screens (or any 24-bit color image) to one of the Amiga's standard display modes.

The hardware component of DCTV is a four by five-inch box with two cables that plug into the Amiga's RGB-video and parallel ports. The video connector, which provides the DCTV display, has a plug on one end and a jack on the other, so you can connect DCTV and your RGB monitor cable at the same time. The parallel-port cable, which is used only for the DCTV digitizer, has no pass-through, so you have to unplug your printer when you want to digitize, or plug both cables into a switch box.

You also get two RCA connectors for Video In (used by the digitizer) and Video Out (used by the DCTV display). There are an adjustment knob and a screw, as well as software to aid in any necessary minor adjustments.

Once you plug DCTV into your RGB video port, you need a composite monitor to display its output, because the device turns specially-coded RGB display data into a composite TV signal. You still need your RGB monitor, however: DCTV's display supplements that of the normal RGB, but does not replace it—you cannot run Workbench or any other program not designed especially for DCTV on its display.

Fortunately, most Amiga owners use a monitor like the Commodore 1084, that works in both RGB and composite modes, thus allowing DCTV owners to switch from the normal display to DCTV by pushing a button. Those using an RGB-only monitor must have a second monitor

for DCTV, though only one is active at a time.

If you wish, you can record DCTV's output directly on your VCR without a genlock encoder. Because the signal is already composite, you cannot use a genlock to superimpose a DCTV picture over live video. DCTV does not interfere with normal genlock functioning, however, so you can keep both devices plugged in at the same time. For those who wish to use DCTV with a genlock such as Digital Creations' own Supergen, the company plans to offer in the near future an RGB adapter that will let you use DCTV on the same RGB display as your other Amiga programs without switching.

Under the Rainbow

DCTV works by using the RGB port as an I/O port that sends information to DCTV at a speed appropriate for video. This information, which is encoded into special Amiga display screens that DCTV recognizes by a "signature" in the upper left corner of the screen, is a digitized and compressed form of the analog waveform data required to create the composite display. With this information, DCTV turns the RGB data into a TV picture.

The television picture that DCTV creates is far better than the normal Amiga RGB display for some purposes, and far worse for others. For pictures that contain a lot of color changes, like photographic material, DCTV provides the same quality of image that we see every day on television. But when it comes to images such as text that require a lot of detail, DCTV's display is as blurry as trying to watch computer output on your TV. In short, like TV, DCTV is great for displaying images, and useless for tasks like word-processing or desktop publishing.

DCTV produces a television signal instead of a computer display, so it would be misleading to talk about its display resolution in computer terms by discussing pixels, or bits of color per pixel. There are no distinct dots of color on a TV screen; colors blend into one another on each line of the display. So while DCTV software may internally compose pictures from 24 bitplanes of 736 × 482 display data, the output really is not comparable to a 24-bit RGB display. The most accurate way to describe it is to say that it produces pictures indistinguishable from standard color TV pictures.

Because DCTV creates its display from special Amiga screens, you can use only Digital Creation's custom software to create these screens. Fortunately, the package includes all of the software you will need to do useful work. This consists of three modules: Digitize, Paint, and Convert. Although these programs will run (with some minor limitations) on 1MB of RAM, at least 2MB is the preferred configuration, and some of the more full-featured software that Digital Creations has on the drawing board will require upwards of 5MB.

Scanning Images

Digitize lets you capture video images as DCTV pictures. This is a one-pass process, and you can use any composite color signal (without a signal splitter). The digitizer is not a frame-grabber, however. A complete scan takes from six to ten seconds, which means that you can use only still video sources such as a video camera trained on a still photo, a VCR or laser disk with a clear still-frame feature, or a still video camera.

The digitizer software has a pause feature that allows you to create special effects like moving objects in mid-scan for a "melting" effect, or digitizing a person in one part of a room, pausing, and then digitizing him somewhere else. Once you've captured an image, there are settings that allow you to adjust the color, tint, brightness, and contrast.

When you've got the image you want, you can save it in one of three formats. The DCTV "raw" and 24-bit IFF file formats both save all of the information that was captured. The DCTV raw file is smaller (about 500,00 bytes), but can only be read by DCTV. The 24-bit IFF file is larger (around 800,000 bytes), and it can be read by some existing Amiga applications that use hi-res files, such as desktop publishing programs.

The third format, the DCTV display file, saves just the Amiga screen data that produces the DCTV picture. This is a standard Amiga IFF file, and can vary in size from eight-color 640 × 200 (about 36,000 bytes) to 16-color 736 × 482 (about 145,000 bytes). You can display this file from most

Continued on p. 78.

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From p. 75.
Amiga programs that display IFF files, but you'll only get a faint gray picture unless you have the DCTV device attached.

Powerful Painter

The second program in the set, Paint, can be used to touch up a digitized image or to create a painting from scratch. Since Paint will read just about any Amiga IFF file (including HAM), you can use it to convert normal Amiga images to DCTV format for further enhancement. Many DCTV owners I've talked to say that Paint is the best paint program they've ever used. One reason may be that it's the only Amiga program that makes painting with millions of colors as easy as painting with sixteen colors in DeluxePaint. Another is that the program has plenty of fancy features, some of which break new ground.

One of Paint's innovative features, called the Mixing Area, allows you to create new colors by smearing dabs of primary colors together, as you would with an artist's palette. Another is the Watercolor brush mode, in which your brush stroke becomes lighter as your brush "dries out."

Paint includes, of course, all of the standard features, such as a wide variety of drawing tools, cut and paste, stencils, and fills of various sorts. In addition, Digital Creations added many refinements to these standard tools: gradient fills that allow up to 25 color ranges; Tint mode, which changes only the colors of an object and not its surface detail; and Filter mode, which helps get rid of false colors and fringing in order to produce "legal" video.

For all of its superior features, Paint is far from perfect. There is no Undo feature (mainly to keep the program running on 1MB machines), text handling is awkward, and the menu structure is very confusing at first. Digital Creations promises a 1.1 version soon that will add Undo, better text, and ARexx support.

Converting DCTV Pictures

The last program in the trio is Convert, whose main function is to convert DCTV pictures into any of the standard Amiga modes. Since it loads just about any kind of IFF image file, you can use it to convert pictures from one Amiga format to another.

Convert has all of the same image-processing options as Digitize (including adjustments for color, contrast, etc.). There are three dithering options, which help to maintain the illusion of color when converting to a mode with fewer actual colors. You can force a picture to use a particular palette, which is handy for combining pictures that originally used two different palettes. In other words, Convert gives you all the tools you need to create the best possible image when converting a picture from one mode to another.

Although DCTV is a stand-alone system, it integrates more closely with the Amiga than you might think. DCTV pictures store as regular IFF files, so you can display them on any 512K Amiga with DCTV attached. This means you can use DCTV pictures with slide-show programs or authoring systems like AmigaVision (Commodore) or CanDo (INOVAtronics). DCTV can also be used to create and edit 24-bit graphics files for desktop publishing, and many Video Toaster users I have talked with find its Paint program better suited than Toaster Paint for altering Toaster images.

Although DCTV display images do not have the same resolution as Toaster images (looking as though they came from a VCR, as opposed to a laser disk), they take up only about a tenth of the disk space, so that DCTV can decompress fast enough to play them back on the fly. This means that you can create a series of 24-bit files with high-powered, 3-D animation programs like LightWave, convert them to DCTV display format, and combine them into an ANIM file for playback at close to 30 frames per second on an A3000. DCTV even makes it possible to play back full-motion video ANIMs that are virtually indistinguishable from videotape.

DCTV is an innovative product that breathes new life into the Amiga display system. Its built-in digitizer provides high-quality images for use with Amiga programs. Its versatile software makes painting and processing colorful images a snap. And its price makes it affordable for just about anyone who wants to work with TV-quality graphics.

Scala

Stepping up to the multimedia plate.

By Loren Lovhaug and Frank Hudson

IF YOU ARE ready to take a swing at multimedia presentations, a slideshow program is a good place to start. If the program in question is Scala from ***Great Valley Products*** ($395), you may be surprised at how far this program can take you.

Scala, a desktop-video/presentation package that lets you create visual aids for presentations and self-running displays, is extremely easy to install, learn, and utilize. When you open the box, you find eight disks bearing the program, two disks of typeface, and five disks of background screens, clip art, and palette files. To achieve the best results, you need an Amiga equipped with 1MB of chip RAM, and although it is possible to create Scala presentations without one, a hard drive is highly recommended.

To develop Scala presentations (also called scripts), you create and manipulate lists of screens—a completely object-oriented and menu-driven process. Throughout the program, Scala presents you with a variety of options in the form of on-screen buttons and requesters for shaping your presentation.

Scala's main menu consists of a series of blank slots. By filling these slots with instructions, you can define page-screen order and indicate pauses (defined in seconds) or transitional effects (wipes). Altering the order of your presentation's components is as simple as dragging a slot's contents to a new location. With the buttons located below the slots, you can load, save, or preview your show and change or delete screen-page definitions.

Scala provides a varied selection of elements for each screen page, including an IFF background image, text, IFF brushes, ANIM files, and interactive on-screen buttons. The brushes, however, are not terribly exciting images, as they consist mostly of pictogram figures. Again, Scala's requesters and selection gadgets help

you define each element's attributes. You can alter the order in which these elements appear with a list metaphor similar to the main menu's screen-page list.

Determining the way each screen will look begins with defining its background. You can load any IFF image as a background, or you can choose a blank background screen. Scala comes with 59 of some of the most attractive background images I've seen, including several mineral and fabric textures. Although the rest of the package supports overscan, these backgrounds are not in overscan format, so you must convert them manually if you plan on using Scala for video titling (overscan is standard in video).

The Good Word

Scala's strong suit is its text facilities. Not only does the program offer some of the more common text-manipulation features—margins, tabs, and line spacing, for example—but it also includes some rather unusual options such as special effects (shadows, 3-D extrusions and others), boldface weights and italic slants, adjustable inter-character spacing, and the ability to vary the weight and placement of type. Scala supports all standard Amiga-bitmap screen fonts, including ColorFonts. The program supplies 17 typeface families with large point sizes appropriate for video display work. They are all standard designs—such as Futura, Garamond, and Gill Sans—whose clean appearance makes for legible video displays.



A sequence of events in Scala.

In a fashion similar to desktop-publishing programs, Scala lets you place and move text freely on screen. The program applies such text attributes as bold and italics to whole lines or groups of lines at a time. Although this scheme prohibits you from italicizing single words or parts of lines, you can move separate lines of text so they appear to be on the same line.

To save a little time, you can save sets of formatting decisions (fonts, font colors, font attributes, margins, and tabs) as a Scala .layout file for use as a simple style sheet. Finally, Scala can read and render standard text files on screen according to your layout settings.

Font Fandango

Scala provides a choice of 50 transitions to enliven your text, ranging from simple directional animation to the much more interesting venetian-blind, spiral, escalator, and fadecut effects. The speed at which these transi- ►

tions occur is entirely up to you.

In addition to backgrounds and text, screen pages can include multiple IFF brushes or ANIM-5 files (such as those created with DeluxePaint). Scala lets you control the frames-per-second (1–60) display and repeat rates. You can also instruct the program to place text strings at the beginning and end of ANIMs. For example, you could place the words "here comes the pitch" on the first screen of an ANIM file depicting a baseball pitcher throwing a fastball, and then display the words "strike one" at the end.

Scala lets you build a little interactivity into your presentations. You can add one or more hot spots on a screen page so that if Scala detects a mouse click on one of them while your presentation is running, the presentation will jump automatically to a predefined screen page and execute from that point on. Scala also recognizes the two mouse buttons as a forward- and backward-stepping remote control.

Throughout the entire creation process, you never need to use complex programming constructs or remember parameter sequences. However, if you examine the program's script files with a text editor, you will encounter a whole new dimension of Scala. It turns out that Scala's basic engine is an applications generator utilizing a high-level programming language called Visual. If you wanted to take the time to learn Visual, you could write an entire "Scala" presentation. Although this is an interesting intellectual exercise, there is no added benefit to coding your presentation in Visual as opposed to utilizing Scala's slick user interface. There is, however, one area where a knowledge of Visual would help.

A MINOR ADJUSTMENT

Scala includes a utility that allows you to play Scala presentations without loading the entire program. In this way, you can play your presentations on machines with less that 1MB of chip RAM and ethically distribute presentations to people who do not own Scala. For smaller presentations, you can create a self-booting "run-time" disk that automatically copies all the necessary font and graphic files as well as files necessary for Scala-player to function.

This abridged approach breaks down, however, when a presentation's size exceeds one disk. The files needed for the presentation are scattered throughout multiple disks and are not linked to the AmigaDOS disk-name. So even if you supply the delivery system with multiple disk drives, your presentation will not run unattended. You can get around this by manually modifying Scala's Visual control language, substituting full AmigaDOS path-names (including the disk's name) for the less-explicit Visual specification.

Another problem we discovered with Scala's run-time creation system is that it failed to work correctly when the run-time disks were created under Workbench 2.0. This is because the run-time disk, when booted, expects to issue a stack command explicitly from the C directory of the run-time disk. Under 2.0, the stack command will not copy to the run-time disk because it is actually built into the AmigaDOS Shell.

Scala's documentation is pretty good, especially when it comes to teaching the basic rudiments of creating Scala presentations. The manual includes numerous illustrations and a number of step-by-step tutorials. However, the manual has no index and is strangely incomplete when it comes to demonstrating requisite video techniques, such as scrolling text completely off the screen (for rolling credits) and creating transitions for IFF brushes (the same transitions available for text will work). The addition of tutorials describing these common techniques would greatly enhance Scala's documentation.

Compared to other Amiga multimedia packages such as The Director (Right Answers Group), CanDo (INOVAtronics) and AmigaVision (Commodore), Scala offers less support for complex user interaction and lacks even token support for sound and music. But for slide-show presentations, Scala becomes an attractive product and a pleasure to use. In only minutes, you can construct impressive slide shows with just the fonts and backgrounds the program supplies. You can also move smoothly between pictures and easily convey textual information on screen. But most importantly, Scala users need less knowledge of programming concepts than is required for other multimedia programs.

(Editor's note: At press time, we were informed of an update that we were unable to obtain in time to include in this review. Version 1.1, free to registered users of Scala, is said to have real-time anti-aliasing of any Amiga font or brush, continuous scrolling titles, full outline-font support under Workbench 2.1, automatic remapping of brushes, ARexx support, Canon Xapshot RV-311 control, and a superimpose transition for blending two pictures. There are plans for future music and sound support.)

YOUR TURN!

Scala is a tremendous program. I do video titling and animation on the Amiga, so I put it to a lot of good use. It does everything that Pro Video Gold or Post does, and you can overlay text, bring in wipes and fades in animations, and seamlessly join several animations with different palettes.

Art Warsell
Philadelphia, Pennsylvania

WORKBENCH MANAGEMENT SYSTEM

Button up!

By Morton A. Kevelson

IMAGINE SEEING AN array of all your favorite programs displayed for you immediately after you boot your Amiga. "But wait," you respond, "that is exactly what happens now." If you think back a moment, though, your Workbench screen really does not present all your program icons ready for execution. First, you must double-click on a disk icon to open its window. Then you have to locate the program icon you want and double-click on that. If your system has a hard drive, your programs are probably neatly organized in nested drawers several levels deep—possibly within different partitions. That's a lot of clicking!

Workbench Management System (WMS), on the other hand, lets you access applications with a single mouse click. Once installed, WMS ($49.95, ***TTR Development***) presents selected programs as an array of text buttons. You can arrange your buttons neatly in rows, columns, or rectangular grids, with as few or as many as you like—up to the limit of your screen. An 80-column, noninterlaced, Workbench screen can display as many as 77 buttons (with a maximum of ten characters identifying each). An interlaced screen can accommodate

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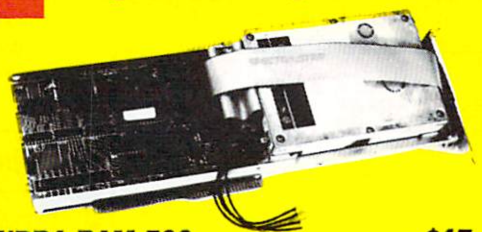
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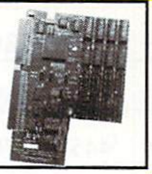
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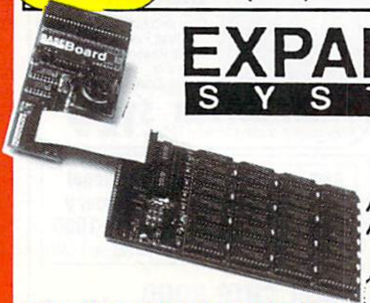
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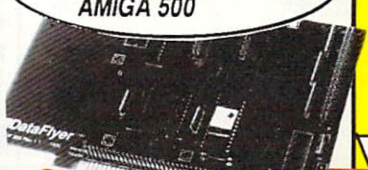
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From p. 80.
up to 154 buttons. Overscan and PAL screens have room for even more.

Conversely, the WMS button array can be as small as a single active button. You can easily iconify WMS and get that out of the way, too. WMS manages layers of button arrays, as well. You can reach buttons located on these elusive layers via the program's scroll arrows or by identifying the page in question. You can also assign buttons specifically for changing layers.

WMS Meets Hard Disk

The install program of WMS makes its transition to a hard drive a simple job. When you first boot WMS, you see a column of buttons containing its nine built-in applications, including the install program and a simple, line-based text editor that's suitable for creating and editing AmigaDOS command files (such as the Startup-Sequence).

Telemate is a basic phone-and-address file supporting separate directories for business and personal entries. Calendar-Reminder is an appointment book and calendar. The Decisive Environment Unit is a collection of reference tables including AmigaDOS error-code definitions, Shell-command descriptions, and an ASCII chart. The SqueezeBox Shell provides an easy way to access four of the most popular Amiga file-compression utilities; ARC, LHarc, Warp, and Zoo (utilities not included).

WMS's File Manager lets you view both text and IFF-image files, listen to sound files, and execute programs. WMS automatically identifies file types and takes the appropriate action. Like the text editor, this program can handle only text files with fewer than 256 characters on a single line. The final two applications are AnyTime!, which displays the current date, time, and memory in eight formats (numeric and text) and TimeSet!, an easy way to set your system's clock.

A Button Editor at Heart

The Button Editor—the heart of WMS—lets you set the default screen configuration and select programs for execution via screen buttons. You may select any number of rows and columns—up to the limits of the screen size—from a pull-down menu option. A floating-window option lets you position the WMS button array to any part of the screen.

WMS not only lets you create and assign buttons for an application, but also permits directory (panel buttons) and text-file loader buttons. Panel buttons allow you to set up levels of specific types, such as buttons for video, business, or games. You can also assign buttons to any text file or script for automatic loading.

Not every program is amenable to execution via WMS. For example, I was unable to get DOS-2-DOS (Central Coast Software) to operate under WMS. Other programs may require special handling to get them to run. The AmigaDOS DIR command crashed my system when I tried to install it in WMS. Although a call to TTR's technical support explained how to get the DIR command to run, WMS would not display the output long enough to be of any value.

Since WMS entries are strings of AmigaDOS commands, familiarity with AmigaDOS would be helpful in getting recalcitrant programs to run. Do not look to the manual for help, because it does not provide technical information regarding the program's operation. I do, however, have to rate TTR's technical support as either excellent or insane—they are the first software developer I have come across that answers phones on a Saturday night!

Finally, when considering a purchase, you should consider the extra 180K of RAM that WMS requires. Its built-in applications, however, do not use extra RAM, because you load from disk as needed.

Workbench Management System is not an essential program, nor does it do anything really new. It does, however, make it easy to access programs without icons and to execute script files. Once you get used to having WMS around the Workbench, you may find yourself reluctant to give it up.

FlashBack

A little insurance policy.

By Greg Morris

THE STORY IS all too familiar: You are right in the middle of a critical report when, without warning, your hard disk crashes, taking all of your critical data with it. Have you prepared for such an event? You may postpone hard-disk backups because you think it won't happen to you. Maybe it won't, but if it did, you'd be very glad to have your important data all backed up and safely stored.



YOUR TURN!

I have a rather odd system and had problems running Quarterback. After downloading the FlashBack demo—which worked perfectly—I bought it.

John Leach
Garfield, Arkansas

This is where FlashBack ($79), a new hard-disk backup utility from ***Advanced Storage Systems***, comes into play. FlashBack's eye-appealing screens easily guide you through the steps necessary to perform back-up operations. You may select your options using either the mouse or corresponding keyboard equivalents.

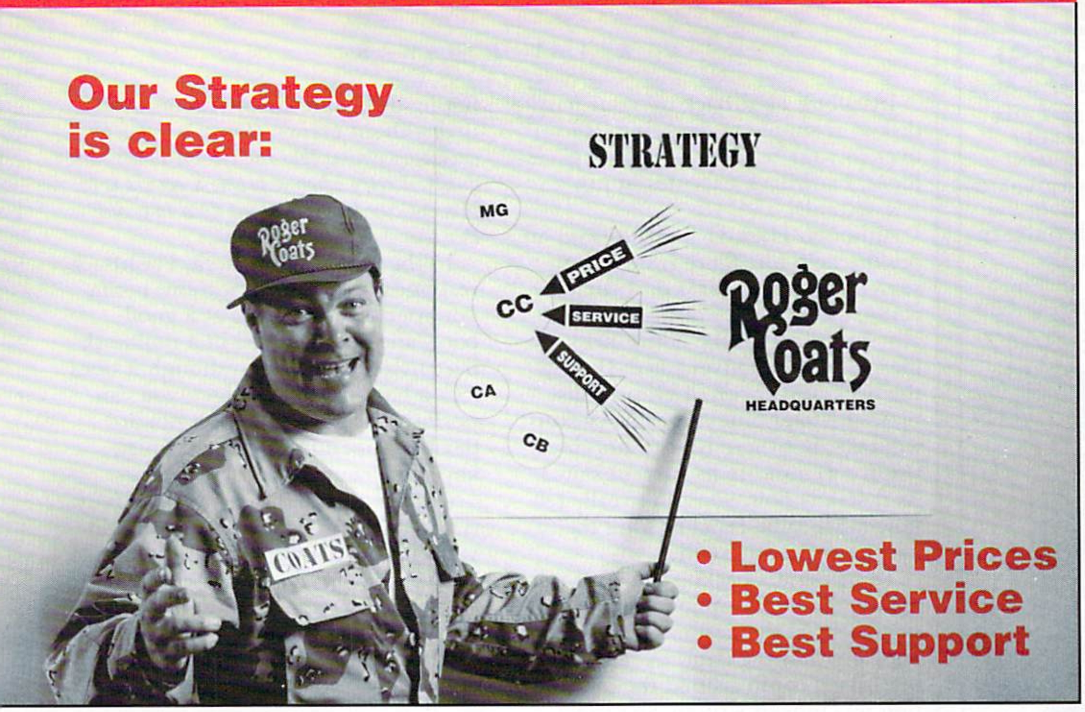
Pick and Choose

FlashBack offers two main types of backups: file or image. While an image backup reads your source disk byte by byte and captures the entire contents (including any file fragments) at high speed, a file backup is much more flexible, enabling you to copy files on a case-by-case basis. Because an image backup requires a high-capacity destination device, it eliminates floppy disks from use. Even though many people prefer file backups, FlashBack's provision of both options is a bonus for those having the storage capacity to handle image backup.

With file backups, FlashBack graphically presents a list of directories graphically on the left side of the screen, with the files contained in a selected directory on the right. Simply by clicking on a file or directory name, you can enable or disable those files for backup. In addition, FlashBack highlights selected files on screen.

Besides graphical file selection, you can specify certain patterns or wildcards within filenames. For instance, you might want to back up only those files that start with "Pic" or only those that end with ".bak." Other selection criteria include files by date and files modified only since the last backup. If you own back-up devices besides floppy drives, such as a tape drive, FlashBack's unattended back-up capability allows you to automate the entire process. Afterward, FlashBack generates a complete report of the files and options involved, which is very handy should restoring become necessary. ►

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Installing FlashBack on your hard disk is as simple as dragging its icon over to your hard disk. Once it is resident, FlashBack executes in just a few seconds.

Although FlashBack comes with an on-line help file, there is no way to search through it for a particular command. Rather, you have to visually scan through the entire help file—a slight inconvenience. During the back-up process, a graphic displays the total time a specific backup will take, but there is no count-down feature to indicate its current status. As it stands now, you can't really tell how much time remains until the backup procedure ends.

To increase a backup's level of reliability, the Verify option reads information from the destination device after it writes the data. In this way, FlashBack confirms that the information was indeed written correctly. While this is a good feature to have, you sacrifice speed in exchange for increased reliability. During a restore operation, however, there is no comparable Verify option.

With the version I tested, 2.05, I succeeded in locking myself out of the program and crashing my Amiga. By clicking two times in rapid succession on one of the requester gadgets, I got *two* requesters—one displayed on top of the other. When I tried to cancel out the top one, I was left in a "dead" requester, with no way to exit. Repeated gadget pressing at this point led to a complete crash of my A2000.

After the crash, I called FlashBack's support line and described the problem to a very helpful representative. He promptly called me back and said that I had indeed found a bug. He also explained that they would correct it immediately and send me the updated version.

One important consideration when planning a software purchase is how well the manufacturer supports the product after your purchase. I received a very positive impression of how Advanced Storage Systems treats its customers. Even though this particular problem is frustrating, you can avoid it by making sure you don't accidentally double click on a gadget.

DEPENDABLE AS A BUICK

When FlashBack has a problem writing to a floppy disk during a backup, it appears not to retry the operation before displaying an error message. Several times during a backup when FlashBack detected a read/write error, just removed and reinserted the floppy disk, and the operation continued without errors. *(Editor's Note: The developer claims that the reason FlashBack does not retry when a problem occurs is to prevent copying important data to a disk that's in marginal condition.)*

In the performance area, FlashBack responds to selections without hesitation, performs backups at a good pace, and behaves well in a multitasking environment. Even though it does lack a back-to-front gadget, you can perform a similar—though not as flexible—operation with an Amiga keyboard-equivalent command.

Despite a few deficiencies, FlashBack is a valuable program that can provide you with peace of mind and a means to recover corrupt data. By following the easy-to-use screens, you can back up your data easily, reliably, and within a reasonable amount of time.

VIDEO TOASTER

Pay no attention to the man behind the curtain.

By Joel Tessler

Editor's note: NewTek's Video Toaster is certainly one of the most discussed products ever to hit the Amiga market. Because AmigaWorld *has run a few stories on the subject—most recently in the October 1990 issue (see 'Amiga Video: Done to a "T," ' p. 20)—the following review is limited to the ways in which the Toaster fits into professional production and editing environments.*

REVOLUTIONS HAPPEN overnight. Evolution, however, is a slow and arduous process. While ***NewTek***'s alleged decision to modify the Video Toaster's original design may account for the board's slow trek to market—approximately three years from the time it was announced—it definitely places its progress in the evolutionary category. The question on the table now is: Was it worth the wait?

The key to the Video Toaster's potential lies in understanding not only its hardware and software but also its cost ($1595) in relation to performance. While its video compression cannot stand up to high-end DVE systems costing up to $12,000 in some cases, the Toaster provides a viable substitute.

Another consideration is that the costly stand-alone boxes do not include the arsenal of software modules that live in the Toaster. In conjuction ►

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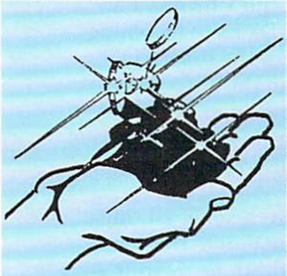
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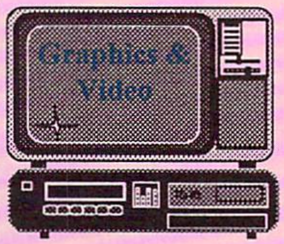
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with the switching capabilities, these modular programs—Chroma F/X, Toaster Character, LightWave 3D, and ToasterPaint—are where the real power lies.

Nuts and Bolts

When you open the box, you will find—in addition to the board itself—one rather large manual and no less than eight disks. You also get labels to help you identify your video inputs and outputs, as well as your program, preview, and interface monitors.

To install the board, you take off your Amiga's cover and very carefully remove the power-supply assembly. Insert the board into the Amiga's video slot and then gently lower the power supply back into place. Fasten the board to the back of the video slot with the two screws provided.

The software installation is straightforward and automatic. Following the prompts, simply feed the eight disks into your floppy drive until the installation is complete.

The next question is, what can you do with the Toaster and what else are you going to need? Here are a few sample systems and their capabilities:

Profile #1: The simplest system consists of a single camera, both an RGB and composite monitor, the Video Toaster, and an editing VCR. Take note that this system does not require the use of a costly Time Base Corrector (TBC). Many of the Toaster features are still available, although you are limited in what you can accomplish.

One of the most basic uses for a system like this could be digitizing company logos with the Video Toaster's 24-bit framegrabbing capabilites. You could then manipulate these frames with the Toaster's various digital video effects (DVE) and "fly" them over backgrounds you can create with ToasterPaint. Going one step further, you could use LightWave 3D and texture map these logos on simple 3-D objects in 24-bit, with resolutions up to 1540 × 960.

With the simple system described above, you can also feed the live camera signal into Chroma FX for real-time processing. Then, you could overlay characters from the built-in character generator (CG), or overlay videographics with the Toaster's T-Paint framestores. Last, but not least, you can use many of the DVEs in real time. If you wish, you can record all of this onto tape and later edit it at a moderately priced editing suite.

Profile #2: With a bit more extensive setup consisting of a Video Toaster, a TBC, two VCRs (one Source and one Editor), an edit controller, a camcorder, and four video monitors (one Source, one Preview, one Program and one RGB), you can do real-time framegrabbing and Chroma FX processing, or apply DVEs to incoming videotape signals from the source machine. You can edit all this directly onto the recording machine. Keep in mind that without the addition of the TBC, the Toaster will not tolerate videotape signals.

If you already have a small editing system, a TBC and a Video Toaster are very powerful additions to your ►

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AW Shucks!

Item: In the May issue, Mitch Wells' article "Way Over the Rainbow" (p. 35) suffered from two seriously misleading statements introduced through faulty editorial fact-checking communication with NewTek, the manufacturer of the Video Toaster. First, the Toaster does *not* accept S-Video signals as input. S-Video *output*, however, can be used as a source with the Toaster after having been converted to a composite signal.

Second, the Toaster does *not*, as stated, allow real-time painting; instead, it works in the Amiga's HAM display mode. Internally, ToasterPaint images are 24-bit data.

We apologize for expressing these facts incorrectly.

suite. For one thing, you can utilize DVEs on every edit. (Keep in mind that the Video Toaster is a switcher.) Another plus is the ability to do match-frame editing. By keeping the very last frame of the edit in one of the Video Toaster's buffers, it is possible to simulate an A/B roll system. With the built-in General Purpose Interface (GPI) trigger feature in the Video Toaster, all DVEs are done automatically, providing your edit controller is GPI-ready.

Profile #3: If you expand your Toaster-based system with two TBCs, three VCRs (two Source machines and an Editor), an A/B roll edit controller, a SMPTE Time Code Generator/Reader, and five monitors (two Sources, one Preview, one Program and one RGB), you can perform true A/B roll editing. Essentially, this configuration allows you to engage in editing much like the network big guys. This may seem like an expensive system, but it takes you to a level of editing that, up until now, you could achieve only through spending tens of thousands of dollars.

By adding a TBC to your suite, you can synchronize your two source players with the Toaster for perfect timing. You are able to dissolve or use one of the many DVEs, from live-action scene 1 to live-action scene 2 without having to freeze images. For example, VCR A has a close-up shot of Dan Marino as he is releasing the football. VCR B has a wide-shot of a receiver catching the ball. By setting our edit points, we can now roll VCR A for a fixed duration and at the appropriate moment dissolve VCR B into the scene. This type of editing has mostly been done in the domain of high-end, post-production facilities with a lot of money to spend—effectively locking out videographers with moderate budgets.

Profile #4: For a somewhat whimsical, mobile Toaster system, assemble a distribution amplifier, three cameras (at least two of them genlockable), a VCR recorder, six monitors (three Source, one Preview, one Program and one RGB), BNC cable, and a truck. Since most of the switchers used in mobile situations have boring wipes, fades, and other lackluster effects, plugging a Toaster into an already existing mobile unit would be a real shot in the arm.

Instead of the standard effects, you could use DVEs in addition to Chroma F/X, and a Toaster Character Generator (TCG). Preexisting framestore images would make a big difference in live production for local cable and independent networks. The setup for this system is unique in that it does not require a TBC. All that is necessary is to genlock cameras 2 and 3 to camera 1 via the distribution amplifier. For sports, concerts, rock and many other remote events, I see a lot of potential in this.

Program Slices

The Toaster Character Generator produces fonts with 35 nanosecond resolution, which translates into very clean fonts that have an on-the-air look. And, although the interface takes a little getting used to, it does the job. The bottom-line crawl is smooth and works well over incoming video. The font-conversion utility allows the TCG to use Amiga fonts. Drop shadows and cast are adjustable, and there are a few Chroma fonts available in the default character set. You can also save pages as framestores, so that they may be used with DVEs in any number of ways.

Chroma F/X can do real-time color-image processing on incoming video. You have probably seen live video on TV that looks painted. That look is just one of 32 presets that include solarize, rainbow, and zebra. The difference with Chroma F/X is that you can customize the look with the tools provided.

LightWave 3D is a full-blown 3-D animation system that produces screens in resolutions up to 1540×960. My favorite feature lets you generate an almost unlimited number of textures, including snow, clouds, and even soil. The motion scripting in this program is superior to any other for the Amiga. As with most 3-D modelers, the learning curve is a bit steep, which is surprising, especially considering that first-time users may purchase the Video Toaster. The Phone-Book 3-D object library contains some good objects, but would be more useful if it included more of the kinds of objects typically needed for production.

What has made a big difference in my work is having a true 24-bit paint program, ToasterPaint, built in (not in real time, however). The program compares favorably with other paint programs. With the transparency feature, you can create some slick-looking backgrounds. The ability to resize framegrabs with accurate scaling works well when you're applying composite techniques. In addition, you can load screens from both LightWave 3D and TCG directly into T-Paint for further processing and manipulation.

Bug Out!

There is a bug in the ToasterPaint framestores. This well-known glitch is being referred to as "The Zipper," and it appears as a dark line during trajectory-type DVEs. NewTek is reportedly working on this problem and claims that fixing it will decrease the load time of framestore files. I was able to go in and fix this manually in T-Paint.

The Video Toaster manual is packed with so much information that it barely fits into its binder. For the most part, the documentation is well executed. The manual's pictures are a great help in getting things into perspective. The documentation for LightWave 3D's Modeler could stand more tutorials and some more instructions on using the front end. The docs for Chroma FX are a little bit fuzzy—a more straightforward demo would help.

The Toaster Character Generator needs better support for larger fonts. Chroma FX does some great image processing on incoming video, but the processed frame unfortunately cannot be saved out as a framestore. Being able to process and then save the image would be a plus.

LightWave 3D is a powerful set of programs, but I would like to see more work done on the front end to make it easier to use. A few of the 3-D library objects use too few polygons, giving the final rendered object a faceted look that is unacceptable for truly professional rendering.

Being able to phase the four video inputs from software would make engineering much easier. Someday, I would like to open up ToasterPaint to a full screen. Scrolling around in T-Paint gets pretty tedious after a while. Also, the only way I can get a good gradient fill is to do the fill in the alternate buffer and then do a rub-through fill on the original page. It would also be very useful to enable genlocking while in T-Paint in order to see how the graphics look over the incoming video. Animation should not be left to DVEs and LightWave alone; a 2-D animation module would really enhance this system.

NewTek has opened up an affordable, real-world platform, enabling us to produce our videos at a new level.

Special thanks to MPCS South for giving me full access to their Tektronics Video lab, and thanks to Wade Klipper and Michael Hicks for engineering support. ■

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Friday, 5:00 PM
THE AMIGA VIDEO MACHINE
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AMIGA WORLD PREMIERE

Saturday, 12:00 Noon
THE CDTV EXPERIENCE
The Future of Home Entertainment
AMIGA WORLD PREMIERE

Sunday, 12:00 Noon
THE ART OF THE AMIGA
Next Generation Graphics Today
AMIGA WORLD PREMIERE

The Stouffer Orlando Resort, located at 6677 Sea Harbor Drive, is the show site and headquarters hotel. Rooms are available for a special AmiEXPO discount rate: $110 Single or Double.

AMIGA

To make a reservation, call the Stouffer's directly at 407-351-5555. HOTEL DEADLINE IS JULY 2, 1991.

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FRIDAY

1:00	INTRODUCTION TO AMIGA UNIX
2:30	GRAPHICS OF THE 1991 ART & VIDEO AWARDS
3:00	INSIDE WORKBENCH 2.0
5:00	SPECIAL KEYNOTE PRESENTATION

SATURDAY

11:00	VIDEOS OF THE 1991 ART & VIDEO AWARDS
12:00	SPECIAL KEYNOTE PRESENTATION
1:30	AMIGA MULTIMEDIA
3:00	GRAPHICS OF THE 1991 ART & VIDEO AWARDS
4:00	EXTENDED GRAPHIC DISPLAYS

SUNDAY

12:00	SPECIAL KEYNOTE PRESENTATION
1:30	AMIGA MUSIC/VIDEOS
3:00	VIDEOS OF THE 1991 ART & VIDEO AWARDS
4:00	NEXT GENERATION AMIGA GRAPHICS

SHOW HOURS

July 26	July 27	July 28
Friday	Saturday	Sunday
1 PM to 6 PM	10 AM to 6 PM	10 AM to 5 PM

JULY 26-28 RELEASE

NOVICE CLASSES MAKE IT EASY

AmiEXPO offers two Novice Classes for those beginning with the Amiga and computing in general. Each class is 3 hours long, costs $30 per person and is limited to 50 students.

Sponsored By AMIGA WORLD

BASIC AMIGA CONCEPTS 10-1, Fri.& Sun.; 2-5, Sat.
- Introduction to All Amiga Models • All Peripheral Expansion
- Full Workbench Coverage • Beginning CLI

UNDERSTANDING THE CLI 2-5, Fri. & Sun.; 10-1, Sat.
- Unleash your Amiga's Power • Most Essential CLI Commands
- Exploring Public Domain • The World of Telecommunications

MASTER CLASSES - MEET THE EXPERTS

To efficiently get the most out of your Amiga, you need an expert. Amiga Master Classes are designed to provide information on important professional topics.

There are six different topic areas, divided into Introductory (I) and Advanced (II). Each class runs 3 hours, costs $60 per person and is limited to 40 students.

AMIGA VIDEO Instructor: Oran J. Sands III

VIDEO I 10-1, Friday and Saturday
- Basic Video & Amiga Relationship • Video Hardware
- S-Video vs NTSC • Video Software Overview

VIDEO II 2-5, Friday and Saturday
- Continuation of Video I • Optimizing Video Output
- Video Toaster • Pro Video Post • Genlock Comparison

AMIGA ANIMATION Instructor: Steve Segal

ANIMATION I 10-1, Saturday and Sunday
- 2D Character Animation • Digitized Animation
- Storyboarding • Character Design • Recording The Work

ANIMATION II 2-5, Saturday and Sunday
- 3D Animation • Character Modelling •
- Texture & Bump Mapping • Solid Modeling • Ray Tracing

AMIGA AREXX Instructor: R. L. Stockton

AREXX I 10-1, Sunday
- Basic Language Structure • Libraries
- Host Addresses • String Handling

AREXX II 2-5, Sunday
- Commercial Applications • Non-Amiga Rexx
- ARexx in WB 2.0 • Graphical User Interfaces

AMIGA GRAPHICS Instructor: Jim Sachs

GRAPHICS I 10-1, Friday and Saturday
- Basic Graphic Concepts • Anti-aliasing • HAM Painting
- Palette Selection • Brush Painting • Stencils

GRAPHICS II 2-5, Friday and Saturday
- Advanced Graphic Displays • Image Processing
- Animation Planning • Beyond Bitmaps • Going to Print

AMIGA 3D Instructor: Tony Dispoto

3D I 10-1, Saturday and Sunday
- 3D Concepts • Modeling • Rendering Engines • Lighting
- Scuplt-Animate 4D • Turbo Silver • Imagine

3D II 2-5, Saturday and Sunday
- Continuation of 3D I • 24 Bit Rendering • Use of Paths
- Optical Disk Recording • 3D Animation •

AMIGA MULTIMEDIA Instructor: Steve Gillmor

MULTIMEDIA I 10-1, Friday
- Multimedia Defined • Choosing Your Tools
- Hypertext and Hypermedia • Analysis of Student Projects

MULTIMEDIA II 2-5, Sunday
- Commercial Applications • ARexx in Multimedia
- Multimedia Design • CDTV and CD-Rom Development

Registration is $5 More At The Door

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Public Domain Library

We are the **Offical Public Domain Library of Antic Amiga Plus**, we have been the **Offical PD library of Amiga World.** Find out why these magazines choose us! Each of our disks are jam packed with only the best programs. The first two letters on each disk indicate the orientation of the disk; DD# intermediate to advanced - often contains source, WB# general interest - most programs can be run from the workbench, and FD# games and entertainment. Order our disk based catalog and receive a coupon for a **complimentary** volume with your next purchase. We always use only SONY disks!

Featured Disk

DD79abcd: Amiga C Programming Tutorial - This is the most comprehensive C language, Amiga orientated set of tutorials available. Includes full working examples, source code and an incredible set of lessons. Included are full discussions and examples of mostAmiga programming topics. Four disk set, counts as three.

New Disks

FD55:Puzzles - Contains TripleYatz, a multiplayer, multigame yatzee clone. Also BoomSquad, an .info best of PD Pick (#39,pg 45), Adventure, Logic, and Mosaic; four very good strategy games.
FD56: Arcade - Includes SpaceWar, an .info "Best of PD" pick (#39, pg 45), HueyRaid a well done helicopter arcade game, and Game - a "GameBoy" emulator with a version of Tetris.
WB87: New Testament - Contains the entire text of the New Testament in a well thought out user interface. 1mb suggested.
WB88abc: The Complete Bible - A three disk set, with the entire text of the New Testament and Torah (Old Testament) includes wb87. 1mb suggested.
WB89:Education- Fish, not your everyday electric eel, but a fun to experiment with simulated fish aquarium. Also contains a well done math quizzer, history, religion, geography and more.
WB90: Rippers, Strippers and Beats - For the Amiga music enthusiast, this disk contains many programs designed strip music from your favorite games and programs. Music can then be played with your favorite PD Music program. Also contains Drums, a very nice drum machine. This disk does require moderate knowledge of the CLI.
WB91:AV Educational - Flags of Europe, beautifully presents all of the flags of Europe along with maps and geographic statistics of the countries. Requires AV.

Other Great Disks!

FD5: Tactical Games - BullRun - a Civil war battle game, Metro - you play the role of a city planner. Build wisely and your system will be a success, but poor planning will lead to disaster and financial ruin. Very very habit forming.
FD6: GAMES! - This disk is chock full of games including; Checkers, Clue, Gold - A new slide the pieces puzzle, Jeopard - An enhanced version of Risk, RushHour - Surprisingly addicting, and SpaceWar - Best described as a cross between Combat-Tanks and asteroids.
FD7: PACMAN - This disk contains several pacman type games including; PacMan87, MazMan and Zonix.
FD9: Moria -. This has great graphic controls, multiple spells, similar to Larn and Hack. Play time several weeks!
FD10: HackLite - A dungeon adventure game. Considered a must-have classic. This is the second release of this game on the Amiga. Great Amiga graphic interface. Play time several weeks!
FD11: Las Vegas and Card Games - Las Vegas Craps - The best Las Vegas Craps simulation every written for any computer. Contains extensive HELP features, Also Thirty-One,VideoPoker and more.
FD12A,FD12B: Star Trek, The Game - This is by far the best Star Trek game ever written for any computer. It features mouse control, good graphics, digitized sound effects and great gameplay. Counts as 2 disks. Req. 1Mb and two drives (or hd).
FD13: Board Games - contains multiplayer Monopoly, Dominoes, Paranoids, and others.
FD14: Dungeon Master Hints and Arcade Games - DM maps, spells, item location, and hints and more, also on this disk, Hball - an arkanoid/breakout type game, Trix - a Qix type clone.
FD17: Educational Games - This disk includes several games for the younger members including geography, math, science, and word games, also includes Wheel of Fortune.
FD20: Tactical Games - MechForce(3.72); A game that simulates combat between two or more giant, robot-like machines. Simple words can't begin to give you the feel of piloting a 30 - 40 foot tall, fire breathing, earth shaking colossus that obeys your every whim.
FD26:Arcade Games - Marble_slide, this is a truly commercial quality game. Similar to a Lucas game named PipeDreams, excellent playability and entertainment, Mutants , a small version of the arcade game of the same name, also SuperBreakout a pong/arkanoids type game.
FD27: Arcade Games - This disk is loaded with some great games. Includes, Raceorama a great racing car game with ten different courses, MiniBlast a helicopter gunship type clone, Shark in the same class as froger, and SBreakout the original breakout with more.
FD29: Shoot'em up's - WWII - you're the pilot of a WWII plane flying through enemy territory, you've just been spotted, good luck on you mission, SpKiller - try and penetrate enemy lines with this game, and Retaliator - another great game.
FD31: Games! - Air Traffic Control - a good ATC simulation game, Black Jack Lab - a full featured set of card games, ChessTel - play chess with your friend in distant and remote places with this game and a modem, labyrnth - a well done text adventure game (like an infocom game), and MouseTrap - a 3d maze game.
FD32:Flight Simulator - Includes an instrument flight simulator for a DC10.
FD33: Arcade Games - Ffreddy a mario brothers type of game, Gerbils a target practice game, PipeLine a German interpretation of Pipe Dreams, Tron a light cycles version, and wetroids a wonderful version of asteroids with a hilarious twist.
FD34: Games - Includes WellTrix a derivative of the addictive game of tetris, and new version of BackGammon. Also included are several new "Schwabie type Hacks".
FD35 Omega (v 1.3) - A new outstanding dungeon and outdoors adventure game in a similar vein as hack, rouge, and moria. This version is considerably faster and better that all previous versions. Play time several weeks or months.
FD37a & b:Tactical Games - Empire (2.2w) This great game comes highly recommended. With a full-featured graphic front end.
FD38:Games - Cribbage Master - A great cribbage game and tutor, Spades - a well done card came, ChineseCheckers - A computer version of this classic, Puzz - a slide piece puzzle game and construction set.
FD39a & b:Tobias Star Trek - This is a new, completely different version of Star Trek than that found on FD12. This one was created by the German author Tobias. Now with English instructions. Very Excellent!!! Counts as two disks. Requires 512k memory, a 500, 2000 or Pal.
FD40:Arcade - MiddleEast - a timely arcade game of death and destruction set in Iraq, BackToTheFutureII - a very playable demo version of this soon to be released commercial game, City - a missile command clone.
FD41:Games - Includes Capital Gains - a stock market game, Ball a Arknoids type of clone with many great twists, and Desert Shield - a search and destroy conquer theme.
FD42:Games - Includes SpaceWar3 - a remake of this original Amiga classic, Trippin - a fascinating board game of intrigue, strategy, and player manipulation, Dominion - an engrossing strategy game of galactic war and conquest, Frog - a frogger type clone, and Mines - a very good strategy board game.
FD44: Game - Mechfight is an out of this world role-playing adventure comparable to hack and moria. The setting, interplanetary colonies and space stations. In your quest to explore the world, take time out to liberate bad guys of their most valuable possessions, engage in a mortal combat or two against robots and alien life forms, pick up a new amiga 9000. Most of all, don't forget to stay alive...
FD45: Arcade - Three good shoot'em ups. Batman - save the city from the Joker, DriveWar - gangsters are moving in on your territory, stop them at all costs, Web - a spidery, buggy affair of eat or be eaten.
FD47: Arcade Games - Contains DownHill - a demanding computer slalom ski game, MicroPac - a Workbench mini-pacman game, CrackOut - a break out clone, Jet - a superb aerial dogfight game, AmegaRace - an interesting asteroids type of game, and WindyDay - a unique arcade shoot'em up.
FD49:Chaos Cheats - This disk contains an everything you wanted to know about cheat set for Chaos Strikes Back, including full maps, spells, object locations, super characters and more.
FD50: Submarine Game - Sealance, one and a half years in the making, this is an outstanding submarine tactical game. Commercial quality, highly recommended.
FD51: Games - DesertStorm a fast action arcade game, Amigatraion a well done concentration game, Chute a parachute jumping game, Running a dungeon adventure game similar to Wanderer, and Solix a solitary card game.
FD52: Classics Games - PetersQuest a well done Mario brothers type of game, Jymbc a two player missile command clone, and Vstank a tank commander game.
FD53: Great Arcade - On this disk is a wonderful implementation of the ever popular classic arcade game Defender. Also contain Air Race a WWII flying ace arcade game, and Psycoblast new creation idea game.
FD54: FoodFight - Contains Galactic FoodFight, a wacky spaced out arcade game loaded with shooting ketchup, and hamburger eating monsters, and flying pizzas.
WB2: General Interest - contains, Galaxy a program that represents the collision of two galaxies, Larn - an adventure/action game similar in concept to rogue or hack, but with a much different feel. Try it, you'll like it!, StarChart - a program that lets you display and identify about 600 stars, galaxies and nebulae visible in the Northern hemisphere.
WB4:Telecommumnication - This disk contains several excellent pd communication programs designed to get you on line quickly and easily, Access (1.42) - A very nice ANSI term program based on Comm v1.34, but with the addition of transfer protocols, Comm (1.34) - Last version of one of the best public domain communications programs ever made on the Amiga, Handshake (2.12a) Handshake is a Full featured VT52/100/102/220
WB5 - Fonts #1- Several fonts (35) for the Amiga, also included are five PageStream fonts,and ShowFont - a font display program.
WB6: Video Fonts #2 - ShowFont(4.0) This program allows you to quickly and painlessly view all 256 characters in a typical font. Large AmigaDos system fonts (many up to 56pts).
WB7: Clip Art - This disk is loaded with black and white clip art. Art includes, trees, watches, tools, US and State maps, and more.
WB9:Icons - Truly a multitude of various types and kinds. Also includes IconMiester, IconLab, and others great utilities to help generate icons.
WB10:Virus Killers - The latest and best VirusX(4.0), Kv(2.1), and ZeroVirus(1.3).
WB11: Business - Clerk(4.0), finally a full featured business accounting PD program for the small to medium company. Includes receivables, payables, end of month and much much more.
WB12: Disk Utilities - This great disk is loaded with wonderful utilities for everything including making disk labels, disk cataloging, disk optimizing, disk and file recovery archive and organizing, and all sorts of file manipulation. A real must have!
WB13: Printer Drivers and Generator - over 70 different drivers, and if these don't do it, with PrtDrvGen you can make your own.
WB14: Video- on this disk are several utilities for the video enthusiast. We have included multiple slates, video titling, Bars and Tone, Gray Scale, Screen fades and swipes, Interlace toggles, and SMPTE Calculators .Also on this disk is a full featured video cataloging program.
WB15: Business - This disk contains a spreadsheet, a database, a project/time management program and financial analysis (stocks).
WB16: Business - This disk contains an inventory manager, a loan analysis program, a great calendar/scheduler, a rolodex program, and pennywise a good "Cash Book" accounting for home or office.
WB18: Word/Text Processors - This disk contains the best editors. Includes,TextPlus (v2.2e) a full featured word processor, Dme(v1.35) a great programmers editor with strong macro features,TexED(v2.8) an enhanced Emacs type editor, and a spell checker.
WB20: General Interest - DiskSalv V1.42 a disk recovery program for all Amiga file systems, FixDisk V1.0 another file recovery program with features DiskSalv doesn't have, 3DLookt gives a 3D appearance to your WorkBench, Clean V1.01 a program to de-fragment memory, Tracer - trace any part of an image.
WB22: Fonts #3 - Several more great fonts. These, like the other font disks work great with Dpaint and WYSIWYG word processors.
WB23: Graphics and Plotting - Plot (20b) a three dimensional mathematical function plotter. Can plot any user defined function, BezSurf2 - produce awesome pictures of objects one could turn on a lathe. Can also map iff image files onto any surface that it can draw. Now compatible with most 3D packages, and VScreen - makes a virtual screen anywhere, great for DTP .
WB24:Animation and Paint - On this disk, DA a complete commercial quality cell orientated animation package. Movie an "ANIM" player for standard animation. QuickFlix an IFF slide show and cell animation program. Also on this disk are two PD paint programs of good quality.
WB25:Educational - On this disk are two programs that can generate maps of differing types, World Data Base uses the CIA's data base to generate detailed maps of any entered user global coordinates. Also Paradox a great demonstration of Albert Einstein General Theory of Relativity.
WB26: Disk Utilities #2 - MrBackup, KwickBackup - two well done utilities to help with harddisk and floppy disk backups, FileMast - a binary file editor, Labelprinter - Disk label printer with very powerful features.
WB27: Nagel - 26 Patrick Nagel pictures of beautiful women.
WB29: Graphics and Sound - This disk has several different Mandelbrot type programs for generating stunning graphics. Includes, MandelMountains - a realistic terrain generator, Fracgen - generated recursive fractals from user input, Mandelbrot and Tmandel - two fast mandelbrot generators, also Mostra - the best IFF display program to date, will display ALL IFF's including Dynamic HAM, and Sound - a great IFF sound player, will play anything. Try this disk, you'll love it!
WB33:Circuit Board Design - several terrific routines for the electronic enthusiast, Including PCBtool - a circuit board design tool, LogicLab - circuit logic tester, and Mcad (1.26) a well done new release of this PD CAD program, now comes with predrawn common circuit components for insertion into schematics.
WB34: Utilities - Several well done utilities, some will require moderate knowledge of a CLI or Shell for setup, Chatter Box - this one will play any user defined sound after any event (ie. disk insert, mouse click, disk removal...), , Artm - The Amiga real time monitor, gives you full control of the Amiga OS, very powerful program, Helper - help program to make learning the CLI easier, and more!

WB35: 3d Graphics - This disk contains several neat programs to use with your 3d modeling/raytracing programs 3dFonts - Full vector font set for use with 3d programs, FontMaker - make 3d fonts from any system font, Make3DShape - create 3d shapes from any image, DumptoIFF - create 3d animations preserves pallet, and World3d - a demo program of a front end for use with DKBRender.
WB36: Graphics - On this disk are several programs to create stunning graphical images including, MPath - creates swirling galaxy images, Roses - produce an unlimited number of variations of images that a symmetrically similar to a rose, SimGen - display those spectacular images as part of your workbenck screen, and RayShade - a very good raytracing program, create your own beautiful 3d graphics.
Wb37: Educational - Educational games and puzzles that cover math, geography, spelling, and books. Ages 6 - 15
WB38: Plotting and Graphics - Plotxy is the most powerful full featured plotting package. Used by many colleges and universities. A welcome addition to our library! Highly recommended. Plans - a incredibly well done Computer Aided Drafting program, very full featured. Tesselator - a program that helps generates fantastic looking, recursive M.C. Ecsher type pictures.
WB39: Music - Intuitracker is a German offering of an exquisitely well done program that allows you to play music on your Amiga with CD like controls. Lets you strip out music from your favorite games or others and include them in your music library.
WB40: Music - "CD on a disk", 90 minutes of modern music on this well presented collection.
WB41: Music - MED an incredibly well done, full featured music editor. Create your own stunning music directly on your the Amiga. Similar to SoundTracker but better. Very powerful easy to use program.
WB43:Business - This disk contains AnalytiCalc - probably the most powerful spreadsheet program on the Amiga. A full featured spreadsheet with many features expected in a commercial package. Requires 1.2 MB of memory!
WB46:Clip Art - HighRes clip art with the following motifs - embellishments (borders, dodads ,...), people, and transportation.

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WB48: Clip Art - HighRes clip art with the following motifs - Holidays, music, medical, and misc.
WB49abc:Animation Sampler - On this three disk sampler set (counts as two disks) are some of the best animations that have been created over the last three years. Several examples of "Movie" type animations some with spectacular raytraced reality (coolroby, watch, spigot and egg). Also several european style or "Demo" animation with incredible graphics and outstanding electronic music (akrilight, copersine, doc, dps2010, impact, and logodemo). These truly show off the creative edge of an Amiga!
WB50: Animation - Seven of the best european style animations or "Demos", including - scientific 451, subway (a U.S. entrant, also our favorite), sunride, thrstdemo, tnight, waves, and woow.
WB51: Animation- On this disk are two excellent movie style animations including ShipRotation - a futuristic space ship orbiting a surrealistic world (one of the best), and RV-3 - a dpaintIII anim of a rather wacked out airplane.
WB53:Graphics- The disk contains C-light - The easiest to use raytracing we have seen to date. This one started out life as a full featured commercial product similar to Sculpt3d. Raytracing programs can generate stunning, realistically shaded objects. Also, sMovie - a full featured video text titler similar to ProVideo, Broadcast Titler. Great video scrolling, wipes, special effects, and more...
WB54:Printing - This disk contains several routines to help with the chore of printing. Includes Gothic - Finally a Banner printer for the PD! PrintStudio -a well implemented all-purpose printer-utility with a very comfortable graphic interface and many advanced features, Lila - with ease, print ASCII files to a PostScript printer, and many more.
WB55:Application - XCopyIII - a full featured disk copier, make backups of write protected disks. RoadRoute - find the quickest route from one city to another, highway description included, Diary - a diary program like "Dougy Howard M.D", Cal - a calendar program, Magman - a database tailored to maintain records on articles and publications.
WB57:Animation - This disk has several "Demo" style animations, Including, Blitter, Lolly, Sun5, vertigo, vortex, and xenmorph.
WB59:Business - contains a great, very full featured stock market technical analysis and tracking program, also an appointment calendar, and more.
WB61:Intermediate Utilities - Includes programs to help to drasticaly decrease flicker in interlace and hi-res modes (antiflick), an Atari-st emulator, an eprom programmer, turn your amiga into an eight channel digital data analyzer or ocilloscope, and more.
WB62:Midi Utilities - Several useful midi utilities including, programs to transfer to and from several music programs to midi, a midi sysex handler, a midi recorder with timebase, display midi info, file sequence player, and a few scores.

WB63:Disk Utilities #3 - Several highly recommended programs to aid in removing duplicate files from your hard drive, performing file backups, Binary editing, fast formatting, file recovery, disk track recovery, and forced DISK VALIDATION of corrupt disks.
WB66:Icons #2- Lot's of neat icons. Also, several wonderful programs that to let you create your own icons, modify and manipulate icons and info structures.
WB68:Music Utilities - several good utilities for the Amiga music enthusiast. Includes, Noisetracker - a great music creation program, Sonix2MOD - converts sonix to .mod files which then can be used by noisetracker, soundtraker, and MED, SpeakerSim - a speaker design tool demo, Wondersound is an additive harmonic instrument design tool with a separate envelope design window and 16 relative harmonic strength and phase angle controls.
WB69: Music - This disk has over 90 minutes of classical and modern electronic music for you Amiga.
WB70:Desk Top Pub - Atcp - transfer Macintosh screen fonts, Mac or IBM format .AFM metric files, to Amiga screen fonts and PPage .metric files. With this program open door to the libraries of Adobe and PostScript type!, Calendar - month templates in PS form, Post - a full featured post script file display and print utility.
WB71:C64 Emulation - The A64 Package is a complete, very powerful, Commodore 64 emulator.
WB75: Music - over 100 instruments files (.inst) and sample sound files (.ss) for your music programs.
WB76: Applications - This disk contains Stichery - a often requested knitting design program, Lotto - a rather complete lottery tracking and prediction utility, SSS - this screen capture program can grab almost any screen including games, Today - a personal calender, Tarot - fortune teller, and Grammar - grammar checker.
WB78: AV - On this disk are two Amiga Vision programs (bubbler, sync) written by Lou Wallace, chief technical editor of Amiga World. These programs are marvelous examples of how too's with AV.
WB79: Home & Business Accounting - Includes Ckbacct - the most complete checkbook accounting program going, LCDCalc - this well done calculator has a very large display and operates from the keyboard or mouse, Mileage master - monitor your automobile mileage with this mileage log, Grammar - a grammar checker, and Worldtime - find out what time it is in up to 50 global cities.
WB80:Graphics - Raytracing programs generate absolutely stunning realistic looking planes, rockets, buildings..., and surreal images often consisting of highly polished spheres and objects. 3-D Master is the most powerful EASY-TO-USE of it's kind we have seen to date. This is easily better, and more full featured, than similar commercial programs costing in the hundreds of dollars.
WB81: Great Applications - DataEasy a very easy to use, database program. Don't let the ease of use fool you, this is a very full featured database program including full printer control for address labels and mail merge applications. Also includes, TypeTut a good typing tutor, RLC a full featured label printer, Banner, a multi-font banner maker, and Budget a home accounting in a program. Highly recommended.
WB82:Animations - Four full length, well done "movie" style animations. Including, Coyote, JugglerII, GhostPool, and Mechanix. Two disk set, counts as one!
WB83: Computer Art - this disk has some of the best Amiga generated computer art that we have collected in the past 5 years.
WB85: Graphics - Contains several programs for manipulating 24 Bit color images (ham-e) and a rather nice Iff Image processing package.
WB86: Amiga Vision - Contains the Centurion Press, An Amiga newspaper by Lou Wallace.
DD45: AREXX PROGRAMS - This disk contains several useful arexx programs and examples, PopCLI4 - The latest of a must have utility.
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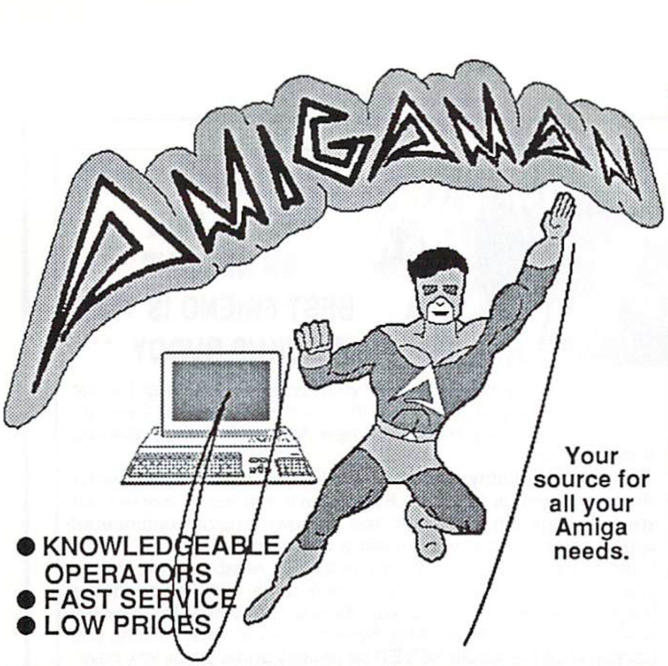
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The Last Word

Kudos, complaints, comments, and concerns from AmigaWorld*'s readers.*

AmigaWorld, Da!

It's a great dial (sic) of luck to buy *AmigaWorld* here. It's very expensive, but your magazine is so good that money dont (sic) play any role when I see a new issue. Amiga is very pupular (sic) in Moscow. Lots of Soviet musicians use Amiga; also Amiga is used for video-titling and advertisement on Soviet TV.

I have rather strange hobby: I collect viruses and anti-virus programs. I have more than 50 for Amiga. Now I am trying to learn C. Also I am interested in graphics hints for DPaint III.

I would like to have a pen-pal, so I give my address.

Jury Vladimirov
121019 Moscow, USSR
KALININ av. 40, apt. 49

Cereal Interface?

In last March's Repartee, Marilynn DeSilva urged finding a biodegradable substitute for the ubiquitous styrofoam chips used to pad sensitive components. Such a substitute does indeed exist and is actually used by the Dutch company Corbian International BV. It's white, it's spongy, it's edible! It's. . .popcorn! This is no joke. Corbian actually packs its products in heat-expanded maize kernels. They do not recommend eating the stuff, but you could always take a walk in the park and feed it to the pigeons.

Ragnar Fyri
Asker, Norway

No Serious Applications?

Did you print Robert D. Freeman's letter ("In the Name of Science," May, p. 8) to see how cranky folks like me would react?

Mr. Freeman appears to be speaking from high ground—perhaps from an ivory tower?—with his concern about "serious" and "nonserious" computers and serious applications. If he were to read Tim Holloway's fascinating article, "The Object-Oriented Amiga Exec," in the January 1991 issue of *BYTE*, he would better recognize that we Amiga owners possess a real high-efficiency wonder that gives the multitasking and windowing services in one-half to one-fourth of the memory that Apple and IBM computers need.

Amiga is very pupular (sic) in Moscow.

The crew at the Stanford linear accelerator facility linked Amigas to IBM mainframes over a year ago, and they coordinate the whole works with ARexx on the Amiga and Rexx on the mainframes. That sounds pretty serious to me. I have also read of medical imaging applications with the Amiga, and I would assume that the folks at NASA are doing something "serious" with their Amigas, too. And people who do professional video production and animation with Amigas probably think they are also using serious applications.

For the benefit of Mr. Freeman and other uninformed folks, *AmigaWorld* might do well to prepare a list citing its descriptions of "serious" Amiga applications over the years.

Stan Skirvin
Scottsdale, Arizona

And Speaking of Serious. . .

As a pathologist and Amiga owner, I have had difficulty finding other pathologists or, indeed, any other physicians who currently use Amiga computers. Pathology is undergoing a revolution in the use of computers for image analysis (automated interpretation of pap smears using neural networks, measurement of DNA content of cells in tumors, interpretation of immunological markers, and so on), but I find that all the available commercial systems use IBMs or clones, in spite of the fact that the Amiga's superior graphics capabilities would seem to make it a natural choice for such systems. If anyone knows of ways I might get in touch with other physicians who use Amigas in their work, please let me know.

Peter K. Shireman, MD
Providence-St. Margaret Health Center
8929 Parallel Parkway
Kansas City, Kansas 66112

A Lot of B(l)arney

April's "Chief Concerns" is another example of Barney's blarney. You seem more intent on citing cliches and kissing up to new leaders at Commodore than in making critical analyses of that company's vacillating business strategy.

Bryant Hayward's SOAP BOX editorial in the same issue (p. 112) is an excellent analysis of the IBM-Amiga situation. Commodore's selling tons of game machines may be a quick shot in the arm, but it does little to expose the Amiga OS to the computer world. John Malone's insight on Unix (April's "Repartee") echoes the same ideas: Commodore needs to get more applications running under AmigaDOS. People buy computers for applications, not for fun door stops.

James D. Creasy
Danville, Pennsylvania

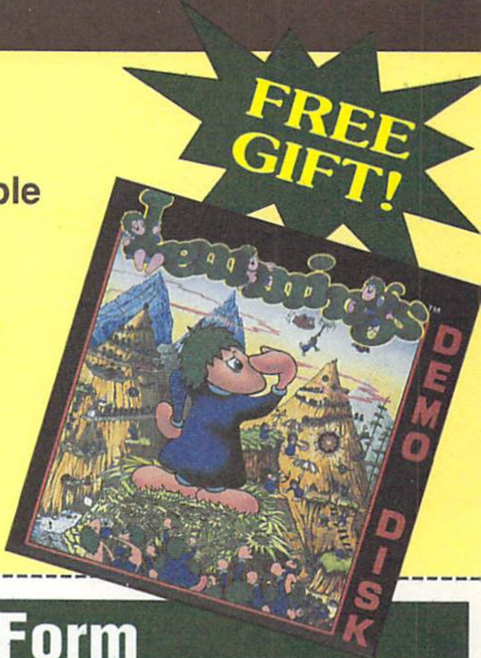
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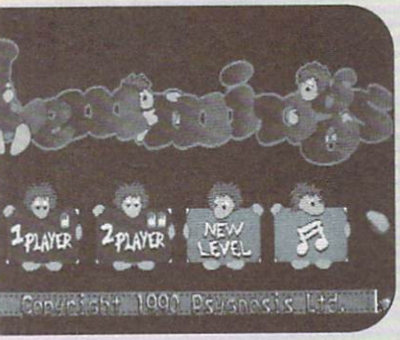
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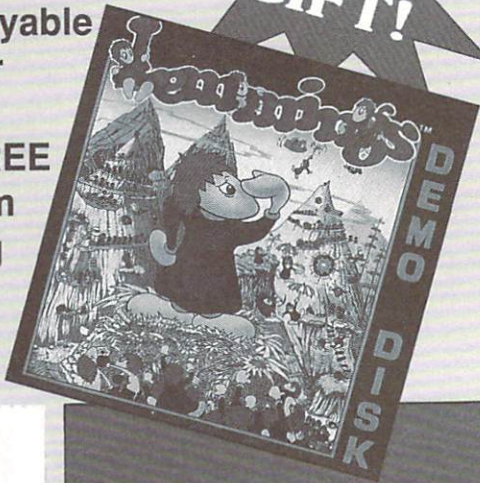
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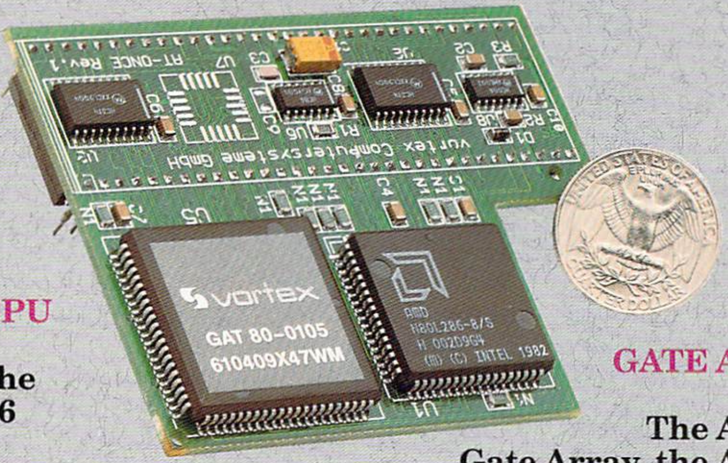
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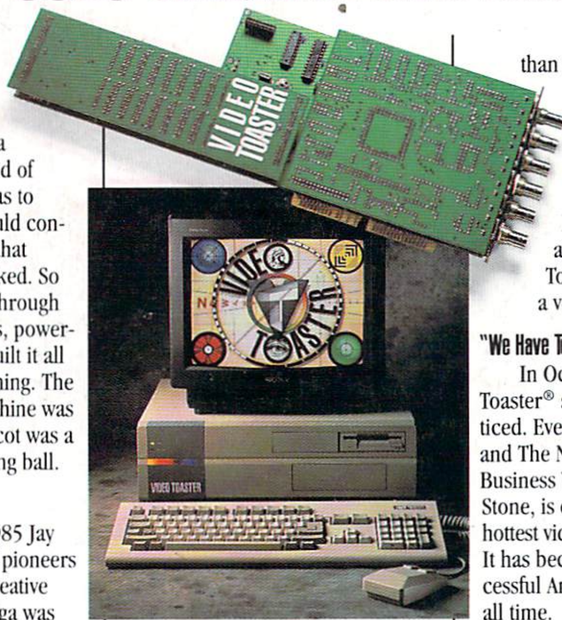
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Thanks, Jay

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*not pictured

The Super Amiga

What if the Amiga had more resolution, more colors, more power, more speed; in short, more of everything that makes the Amiga great? It wouldn't be like a computer anymore. It would be as powerful as expensive network-level video equipment. But it would mean designing four complex VLSI chips, it would mean writing 350,000 lines of assembly language software. Ultimately it would mean inventing whole new technologies. Just the kind of insane challenge that hackers can't resist. Perhaps more than anything, the fact that "it couldn't be done" is what drove "Team Toaster" to do the impossible.

"It'll Never Ship"

In early 1987, Team Toaster moved away from the rest of NewTek to a secret location codenamed "Alcatraz." No office hours, no phone calls, no interruptions. They worked 70 hour weeks. They invented bizarre tricks to drive the 68000, copper, and blitter to new levels of performance. They evolved strange hardware hacks to emulate expensive parts. They concocted their own cinnamon candy. Building the Video Toaster became a more ambitious project than the Amiga itself. Every night, every weekend, every holiday, the world went about its business, and the lights at 'Traz kept burning. It didn't matter what anyone else said, Team Toaster was racing after a very personal dream.

"We Have Toast"

In October 1990 the Video Toaster® shipped. The world noticed. Everyone from USA Today and The New York Times, to Business Week and Rolling Stone, is calling the Toaster the hottest video product ever. It has become the most successful Amiga product of all time.

In fact, the Toaster is so hot that it's bringing the Amiga to new markets. The Video Toaster stand-alone system (an Amiga 2000HD with factory-installed Toaster) was the hit of Comdex, the world's largest IBM PC show, and was even acknowledged as the hit of MacWorld Expo by MacWeek Magazine. The Video Toaster is giving our dealers the opportunity to win over the corporate, educational, and pro video users that the Amiga needs for success in the nineties.

When the Amiga shipped in October 1985 it held the promise of video on a desktop. The shipment of the Video Toaster fulfills that promise. And by the way, the lights are still on at 'Traz.





These 8 disks represent over 50 man-years of programming effort.



This sign sat proudly in front of Amiga headquarters in Los Gatos, California, where the desktop video revolution began in October of '85.

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